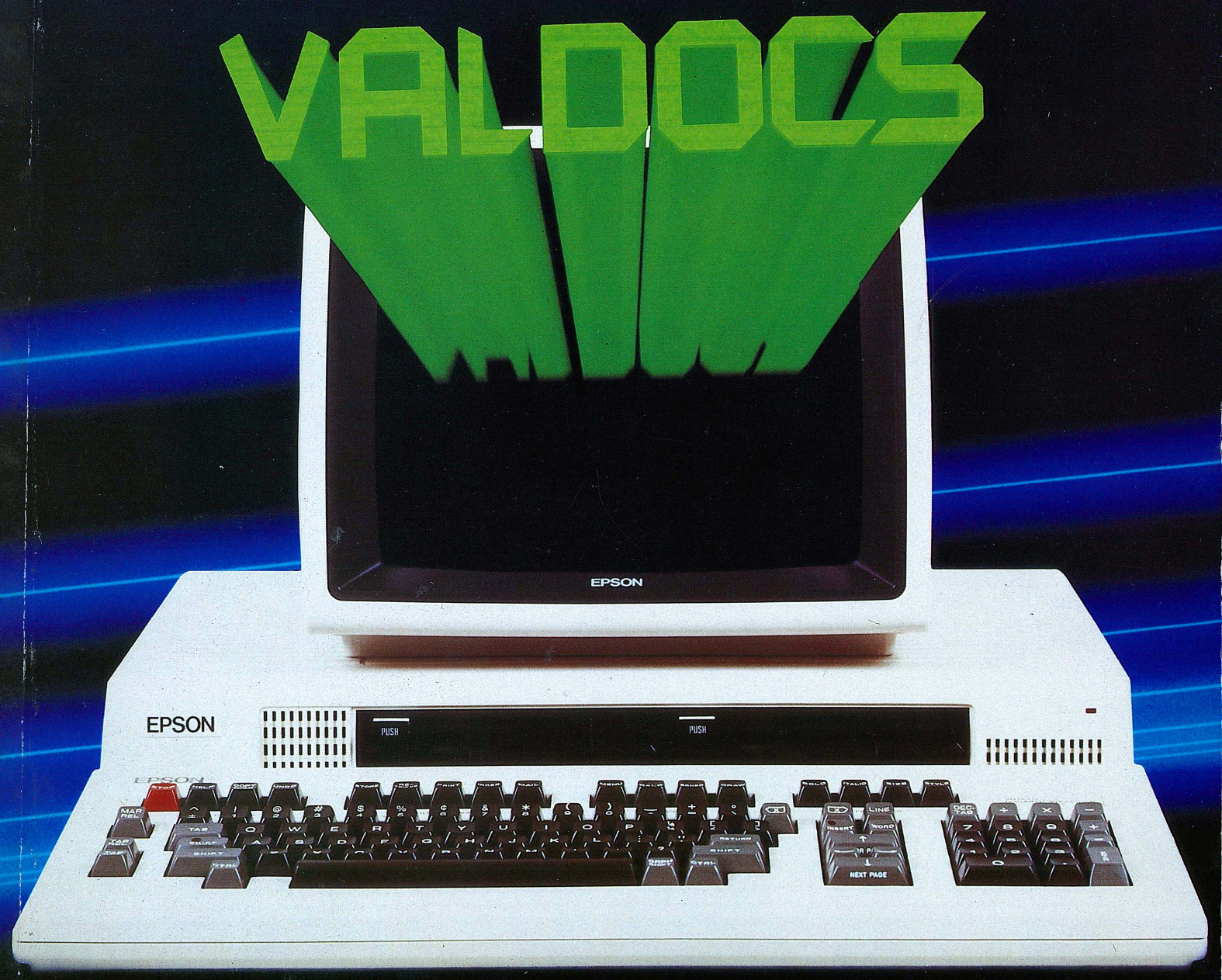
THE QX-10 BOOK

VERSION 1.18



David Barrett and Michelle Mehterian

The QX-10 Book

Version 1.18

by
David Barrett
and Michelle Mehterian

Artwork and Cover Design by Peter Green

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To our family and friends, who put up with our crazy hours and lack of communication, and whose support made this book possible. And to Chris Rutkowski, for having the brilliance to think of VALDOCS. Thanks.

The QX-10 Book

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AUTHORS NOTE

All of the characters portrayed in this book, except where designated, are completely ficticious. Any resemblance to any persons, living or deceased, is purely coincidental and unintentional. The authors are not responsible for the performance of VALDOCS or the QX-10.

All references pertaining to the QX-10, HX-20, and all Epson, Comrex, and related hardware and software are either in existence and working now, or could possibly be developed in the future. Everything that our characters can do with their QX-10's, you can do, too (with the exception of the events portrayed in the chapter, "The QX Future").

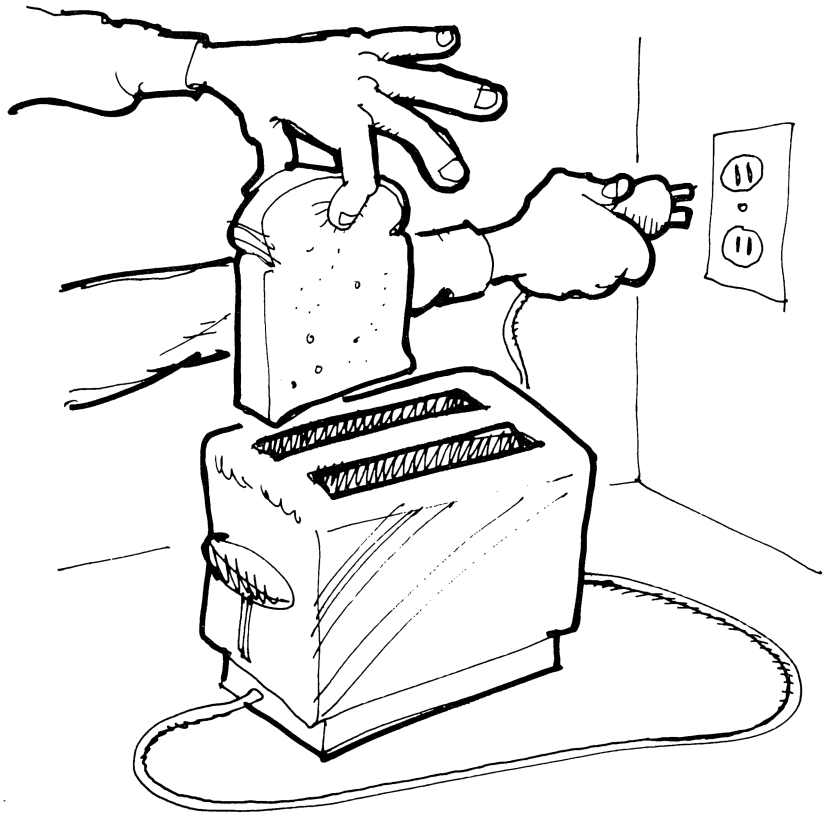
The VALDOCS software system is constantly being updated and expanded. There will never be a final version of VALDOCS. This edition of The QX-10 Book covers VALDOCS through version 1.18.

Because the computer industry is always changing, and due to the tremendous pressure placed on computer companies to be competitive and up-to-date, the authors cannot be responsible for changes in pricing, availability of products, or the introduction of new features or innovations. The basic concept of the QX-10 will remain unchanged.

We had to stop somewhere, so we did. Enjoy!

David Barrett Michelle Mehterian

P.S.—This entire book was written using VALDOCS on a QX-10.



FORWARD

The microcomputer industry has descended upon our culture like locusts in the field. It is nearly impossible to spend much time anywhere without feeling the impact of the computer industry. Television, credit card bills, automobile design and assembly, police and fire department communications, and military weapons control are just some examples of computer technology at work.

In order to use a microcomputer, one must immerse himself into a new and often frightening world. The concepts of RAM and ROM, and the differences between RGB and Composite color can end marriages, promote insanity, and employ psychologists worldwide. Until now.

The ability for a computer to be a friendly and somewhat forgiving device seemed pure fantasy until Epson entered the computer marketplace. The QX-10 is the first micro-computer designed for the novice user. It can be unwrapped and plugged in like an electric toaster. Like the toaster, it can be used right away.

There are many phases to using the QX-10. That is why there are "levels of operation" from "Beginner" to "Expert". The system is ready to progress when you are. Each new level provides additional challenges and opportunities for the user. Finally, there

is the operating system called "TP/M". Because of the capabilities of TP/M (which are still being developed), documentation is playing "catch-up" with developement, if only temporarily. The information provided here will enlighten you to the enormous possibilities available through TP/M right now, and throughout the entire Epson computer system. TP/M was chosen as the operating system for VALDOCS because of it's ability to adapt to the growth of the software.

Because of the remarkable design of this new system, there are many questions concerning what it can and cannot do. Serious computer users want to know the full capabilities and structure of the QX-10. First time computer users want to know how they can develop and expand their computer, and wonder if the QX-10 is the right choice. Many people are still afraid of the entire computer concept. Then there are those of you who already own the QX-10 and simply want to find out things the manual hasn't told you. What can you do with TP/M? What is the "Zapple Monitor"? What about the future of the QX-10? What about future versions of VALDOCS? What about hardware upgrades and additions?

For those of you who already own a QX-10, for those who are trying to reach that "final decision" about which computer to buy, and for those who just enjoy learning more through reading about computers, this book is for you.

RALPH

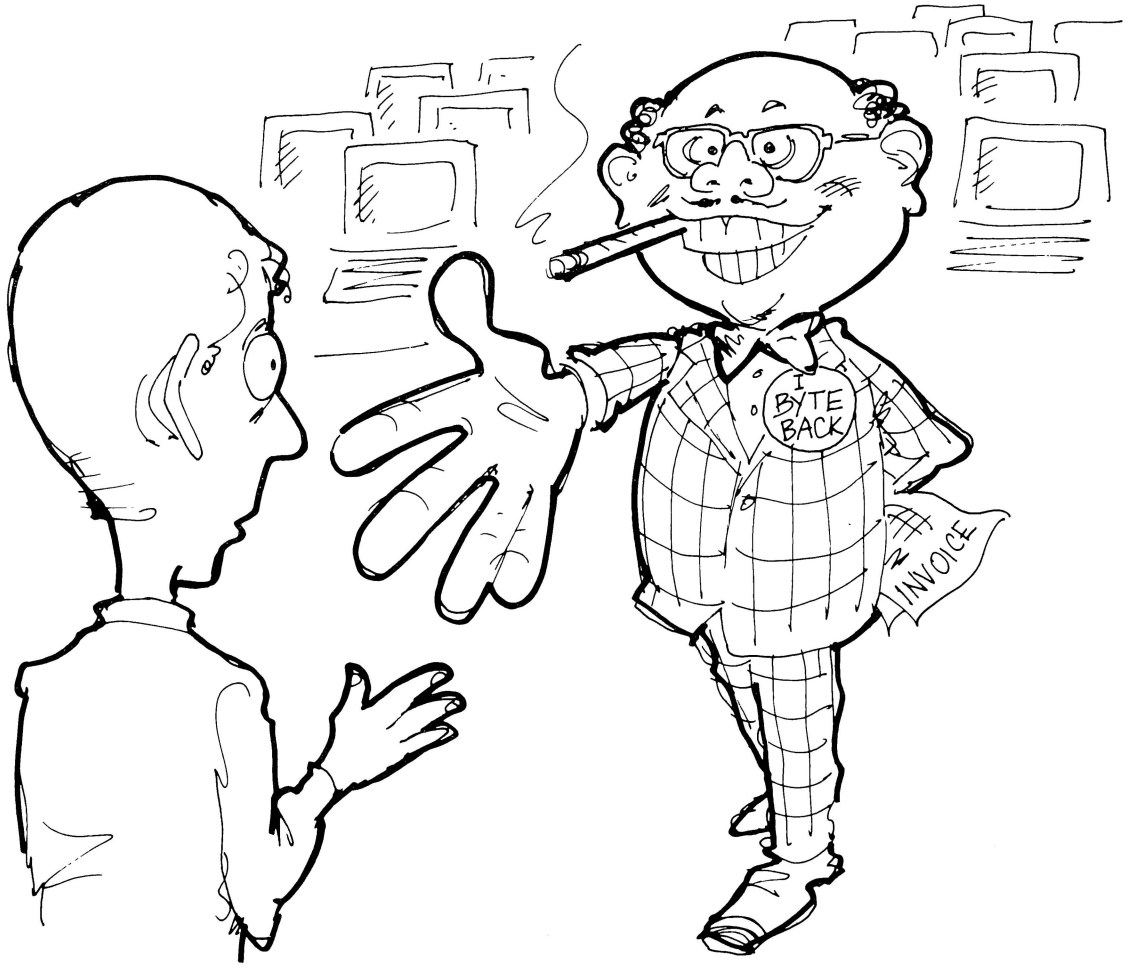
Once you have decided a computer is something you might need, finding the right one can become a full time project. Let's look at the typical first-time computer user and follow his exploits in the world of computer retailing.

Ralph is a writer. He loves his I.B.M. Selectric. He uses it every day. But Ralph is not content. His publisher, E.F. Pilks and Company, has just sent Ralph's latest book, "The Monkey and The Magnet", back to him for revision. Although they loved the manuscript, there was talk of changing the monkey into a llama, and of moving the location from Western Europe to South America. Mrs. Elizabeth Pilks wrote: "Ralph, if you make these changes by Tuesday, we'll send you a check next Thursday."

So Ralph spent every waking moment retyping his book. Every time he read the word "monkey", he typed "llama". Every time he read "Paris", he typed "Puerto San Remo". Monday night at 11:15 p.m., he pushed his manuscript into the mailslot at the central post office. On the way home, Ralph stopped at the market to restock his house with coffee, aspirin, and cigarettes.

Two days later, when Ralph woke up, he realized the truth: in order to stay sane he needed a word processor. Writing was not worth the labor without some high-tech assistance. Yes, with a computer, Ralph would earn a living and have some fun, too!

The first step was to get out the yellow pages. After writing down a series of phone numbers and addresses, Ralph was ready. Armed with a pen and note pad, he ventured out in search of *"compu-heaven"*.



"Hi! Howareya? It's nice ta meetcha!" exclaimed the computer salesman in the store. "Say, that's a swell-lookin' tie! It looks like one my brother got last Christmas in Jersey!" The salesman grinned. "So, what line of work ya in?" Ralph cleared his throat. "I'm a writer..." he began. "Great!" the salesman said as he turned around and walked away. He motioned for Ralph to follow. "Yeah, you writers... Man, I got just the thing for you!" The salesman led Ralph past a series of computer systems set up on desks and tables. They

moved to the far corner of the store. The salesman stopped and pointed to a large computer system assembled over three desktops. Ralph squinted trying to take everything in. "This baby is awesome! Why, just check out the pixels on this RGB screen!" The salesman pushed some buttons and the computer started making funny noises. Ralph stepped back, not sure what they meant. "Yeah, this is the new Tri-Zap III. It's got 128 kay of RAM, 40 kay of ROM, color graphics, and three serial ports. It's even got a light pen and self-diagnostics built right in!" Ralph struggled with the strange words. "Say, why don'tcha have a seat and check out the word-wrap?" the computer salesman said, grinning.

"Well, I've never used a computer before, and I'm not sure what to do... " Ralph felt stupid admitting his lack of knowledge. "No problem," the salesman said." Just have a seat and I'll fix ya up!"

The salesman inserted a black square envelope with a hole in the middle into a slot in the computer. "This here is your 'word processing' floppy. Without this, this baby won't talk to ya." He pushed some buttons and a message appeared on the screen: "WELCOME TO MEMORYMAN III".

Ralph stared at the tiny letters glowing at his face. "Now, everything is in this manual... oops, that's Volume Eight. Lemme see... oh... uh, here it is, Volume One! Open it up to page 20 and start reading there." Ralph looked at the book. "Why page 20?" he asked. The salesman started flipping through the pages. "Cuz that's where all the good stuff is!" He pointed to the first paragraph on page 20. "Ya see where it says '... The cursor is your key to optimum system document coordination. It may blink at a rate in relation to the greater parts of document integration.'? That's the beginning of the good stuff. Now do what it says and I'll go get a system ready for ya!... " The salesman started to walk away. "But wait!" Ralph said. "I don't know anything about this! How do I know this is the one I need?" The salesman kept walking. "Don't worry. It's the one you need. All the real pro writers get this system. I sell tons of 'em!" He disappeared around a corner. "Not to me," Ralph growled under his breath as he headed for the door.

After Ralph made his escape, he wondered how such an idiot could sell tons of anything to anybody? He chalked it up to experience and drove down the street to Eddie's Computer Universe. Ralph had heard these guys were real professionals. They even had a full time programming staff.

Unfortunately, his experience at Eddie's Computer Universe was just as dissappointing. Ralph walked around the store for ten minutes and not once was he approached by a salesperson. They were all deeply involved with telephone calls or using the various computer systems in the store. Ralph wanted to ask questions, but he was afraid that the people using the computers wouldn't talk to him because he wasn't experienced. Yet, he needed help. Finally, Ralph went up to one of the salesmen. "Excuse me, are you using a word processor?" he asked. The man didn't look up. "Nope, I'm programming in Pascal. If you want to see a word processor, take a look at the System Ten over by the daisy wheel." The man pointed at the screen and furrowed his brow. Ralph looked around and tried to find a flower on a wheel so he could see the System Ten the man was talking about. Realizing he didn't understand what the man meant, Ralph decided he needed some help from someone he knew he could trust. Ralph went home to call his friend Leo.

Leo was sympathetic. "Look Ralph, it's like buying a car. The guys who work there aren't any smarter than you or me, they just confuse you by throwing out complex words and computer terms." Leo was an experienced computer owner. He had purchased a system to help him run his medical office. "I have to admit that I love computers, so spending the time to learn all of the fancy language and the other stuff hasn't been a

problem for me." Leo continued, "On the other hand, a guy like you doesn't have a lifetime to spend learning about this stuff. Why don't you talk to Barry, the guy who sold me my system?" Ralph liked the idea. "Sure! That's a swell idea." So Ralph and Leo went to visit Barry at Bob's Business Brokers.

"Hello Leo. How are you?" Barry greeted the two men at the front door. "Fine, thanks. Barry, this is my friend, Ralph. He needs a computer that will let him do word processing. Can you help him?" Ralph felt a little uneasy. Barry smiled and pointed to an office. "Sure, lets go in here and talk about it."

As they talked, Ralph felt more at ease. Barry asked Ralph about his writing and his experience with computers. They talked about the basics of computers and important features to look for. Barry was very friendly and used words that Ralph could understand. He explained that RAM meant "Random Access Memory". He also explained that ROM meant "Read Only Memory". Finally, Ralph was told that a letter quality printer was often called a "daisy wheel". Ralph was impressed with the store and liked Barry. "Yes, I'll get my computer here," he decided.

Two hours later, Ralph sat in his living room, unpacking his new Viks Vapo II computer system. There were three main components: The computer and keyboard, the video monitor, and the disk drive unit. There was also a letter quality printer and a half dozen books.

Finally: the moment of truth. Everything was set up and looked ready to go. Ralph looked at his watch. "This better work..." he thought. He pushed the "ON" switch and watched the screen. A message flashed on the screen, "BOOTING... ". Then another message, "CANNOT READ BOOTSTRAP... ". Nothing else happened.

"Hmmmm." Ralph thumbed through the manual. Near the front he found out that in order to boot the system, he needed to put the master operating disk into disk drive "A" and then push the "B" on his keyboard. Ralph put the disk in the drive and pushed the "B". The screen went blank. Then a message about Digital Research and CP/M appeared in the upper left hand corner. Underneath that, a little mark appeared. It looked like this: A>

"Oh, no. Now what do I do?" Ralph wondered, lighting a cigarette. He picked up the telephone and called Bob's Business Brokers. "Hello, Bob's Business Brokers. This is Brad speaking." Ralph asked for Barry and was told to hang on. After waiting several minutes, he decided to hang up and call again. This time he was told that Barry was in a meeting with Bob and could not be disturbed. So Ralph explained his problem to Brad. Brad said that he would inform Barry of the situation as soon as he could.

Not wanting to wait, Ralph decided to experiment. First he typed in *"BEGIN"*. The disk drive clicked for a moment, and then responded with "BEGIN?". Ralph tried typing *"START"*. The computer flashed "START?". Finally, after a success rate of zero, Ralph broke down and opened the manual. After copying one of the commands from the training guide, the screen went blank, and the disk drives began clicking. Then a message appeared on the screen that read: "WELCOME TO WRITE-A-MATIC!".

"Finally!" Ralph thought to himself. "Now, I'll figure out this word processor and start working on my next book." Ralph's thoughts were interrupted by the telephone.

"Hello?" Ralph said. "Ralph? It's Barry from Bob's. I heard you were having some trouble. How can I help?" Ralph told Barry that he had figured out what he needed to know and thanked him for returning the call. "Well," Barry said, "I knew you'd be able to figure it out. You should have no problems from this point on. Oh, by the way, make sure

you 'back up' your disks when you finish a work session. I wouldn't want to hear about you losing important data for one of your books. Good luck." Ralph thanked Barry, hung up the phone and returned to his work, and wordered how to "back up" his disks?

Ralph's adventures as he searched for a computer are not uncommon. Often, a computer novice will be forced into learning a whole new way of performing his craft in order to properly use the equipment.

A new generation of computers is here. Systems that are more forgiving and easier to use. The Epson QX-10 is the first computer available that takes into account the first-time users experience and helps him to understand and learn how to use the system.

THE QX-10 CONCEPT

In the past several years, computers have been designed to do some amazing new things. Speed, flexibility, and value have been the target areas for most manufacturers. Yet, in spite of all the advances in computer hardware, the ability for the user to interact with the computer in an easy and useful manner has been slow in coming. Enter, the *QX-10.*

Why is the *QX-10* so revolutionary in its design and concept? Isn't every computer simply a box with chips and wires and a funny-looking T.V. on top? Good questions about computers come fast and furious. The concept for the *QX-10* was born of questions like these.

The *QX-10* project, from initial idea to showroom floor, took more than five years to complete. Epson Ltd., Japan (EPSON means "SON of Electronic Printer"), is the world's largest manufacturer of dot-matrix printers. Their entry into the computer marketplace was a carefully thought out, aggressive, and well-organized step forward. In the past two years, the American wing, Epson America, Inc., has more than doubled in size.

VALDOCS. The name itself is an interaction between two words: "VALuable DOCumentS". Working in conjunction with Epson, Chris Rutkowski and Rising Star Industries developed the *VALDOCS* software for the *QX-10.* In doing so, they have broken through the most difficult barrier in personal computing: Computer/Human communications.

VALDOCS allows the user to direct their energies to the work they are doing, rather than to working the computer. In other words, when you are working, you often have many different projects on your desk at the same time. With *VALDOCS,* you can work on one or a combination of projects at the same time.

VALDOCS is made up of many different modules. They currently include: A word processing system, an electronic mail system, an address book, a mailing label printer, a scheduling system, a timer, a business graph system, and a notepad. Each one of the modules can be used without buying additional software programs and without loading new disks into the computer. Remember that the system is designed to be used by anyone!

Many computers use a set of special keys called "function keys." Function keys allow you to give the computer a command or instruction by pushing one button. The *QX-10* not only uses these keys, but labels and groups them according to what they do. The keys are broken down into four separate groups: System Controls, File Controls, Applications, and Typestyles. In all, 17 dedicated *VALDOCS* function keys grace the top of the *HASCI* keyboard.

So there they are... a bunch of keys with funny words on them. Now what? Let's take a look at the *QX-10* and see how they are used.

ELIZABETH

In New York, Ralph's publisher, Elizabeth Pilks, has just received a new and wonderful gift from her husband. The QX-10 computer sat on her worktable and the new letter quality printer was positioned on a new printer stand. Her old Selectric was being stuffed into the hall closet by Elizabeth's husband, Richard.

"Hmmm." Elizabeth opened the package that held the VALDOCS diskettes and placed them on the table. "Okay, Kiddo... It's time for you to learn about your new writing tool," Richard said.

Elizabeth looked at her husband with concern. "I can't believe you went out and bought a computer. How am I going to learn to use that thing?" Richard smiled. "Listen, this is what writing is all about. I'll bet after one week you'll never want to see that typewriter again!" Elizabeth rolled her eyes toward the ceiling and sighed.

Richard helped Elizabeth get comfortable at the table and positioned the keyboard in front of her. "This QX-10 is not only a great computer, but it's a blast to use!" Elizabeth pushed the "ON" switch. "This better be good," she thought. A message appeared on the screen that read: "INSERT DISKETTE". Richard explained what to do next. "There are two disks. One is called the 'system disk' and it holds all of the VALDOCS programs. The other one is called the 'data disk' and it holds all the stuff you write."

She put the system disk in drive "A" and the data disk in drive "B". Immediately the disks began to whirr and a new message appeared: "INITIAL SYSTEM CHECKS OUT O.K. NOW LOADING VALDOCS". "What's a 'VALDOCS'?" Elizabeth asked. "VALDOCS means 'Valuable Documents', and is what makes the computer work." "How so?" his wife querried. "Well, let's just say that VALDOCS lets you use this thing right now without any training. In fact, you don't even need a manual to learn how to write letters and stuff."

By this time, the VALDOCS system had loaded into the QX-10's memory and a new message said: "WELCOME TO VALDOCS. PRESS HELP IF YOU WANT INSTRUCTIONS, OTHERWISE PRESS ANY KEY TO ENTER EDITOR." Elizabeth looked at the keyboard and saw the HELP key in the upper left corner. She pushed it. The screen filled with text explaining the basics of how to use the word processor. "This looks neat," Elizabeth said. Richard sat down next to his wife. "It's more than neat. This can really help you, Liz. Now start typing." She looked at the screen and started to type: *"This is my first experience with the word processor. I think I like this. This is more fun than my first date with Dick!"* She turned to her husband and chuckled.

After typing several paragraphs, Elizabeth asked her husband how to save her work. "Push the STORE key," he told her. Elizabeth pushed the button labeled STORE and read the information on the screen. She followed the directions, and her document was stored on disk. "This is wonderful!" Elizabeth exclaimed. "Is my document on this little disk now?" she asked. "That's right," her husband replied. "But what happens if the disk is destroyed or goes bad?" Elizabeth questioned. "Push the button marked COPYDISK. Then you can make a duplicate copy of the information on another disk. That's called a 'back up'. It's the most important thing you can learn," Richard explained. Elizabeth started working on the COPYDISK procedure. "I'm beginning to really like this computer business," she said.

Several hours later, Richard wanted to try his hand at the QX-10 and VALDOCS. "Honey, can I use it for awhile?" he asked. Liz glanced at her husband, grinned, and kept typing. Richard tapped his wife on the shoulder. "Excuse me, but is this seat taken?" Elizabeth turned and said, "First you want me to use this thing, then you want to use it. Well, let me play awhile longer. You can use it tomorrow while I'm at work!" She returned to her typing. Richard watched over his wife's shoulder. "What are you writing?" he asked. "I'm just putting down ideas about how I could use computers at the office," Elizabeth said as she typed. "Maybe we can start using this thing to key in books for typesetting and stuff!" Richard nodded. He kissed his wife on the cheek and walked upstairs. "I wonder how much the ol' typewriter's worth?" he thought as he got ready for bed.

The ease and simplicity of using the QX-10 is only previewed here.

LEARNING WITH RALPH AND ELIZABETH

Let's check in with our friend Ralph.

After learning the basics of his new Viks Vapo II, Ralph was ready to start his new novel, "The Llama and the Lion". Ralph booted the system up and loaded the WP program by typing "WM.COM". The disks whirred and the screen went blank. Then a message appeared that read: "WRITE-A-MATIC". After a moment the screen read: "SYSTEM NOT YET DEFINED...".

Ralph reached for the manual and opened it to the "Installation" section. The manual seemed to be written in a foreign language. "The installation procedure should be initialized in Hex as opposed to Decimal, and please note that all stop bits must be marked." Ralph blinked and rubbed his chin. "This is less than wonderful," he thought as he lit a cigarette.

Ralph read on. He found out that software programs need to know where everything should be put on the screen, and in what order. He also found that this varies from computer to computer. Early computers did not have their own screens and the user had to purchase a computer terminal. This consisted of a screen and keyboard. Ralph read on to find that there are many different kinds of terminals, and in order for a program to work properly, it must be configured for the proper terminal. The manual told him about a program on his disk that would let him assign a terminal to his program. So he typed *"INSTALL.COM"* and pushed the return key. The screen filled with information: "Please select your terminal from those listed below, or type 88 for custom terminal." Ralph looked for his terminal on the screen. Sure enough, number 18 was the Viks Vapo II. Ralph typed *"18"*. The screen filled with messages for several seconds as the program worked. Finally, the screen informed Ralph of it's final decision: "YOUR SYSTEM IS NOW CONFIGURED. PRESS RETURN TO CONTINUE...". He pressed the return key. After a moment, WRITE-A-MATIC introduced itself again.

Ralph stared at the screen. The screen flickered at Ralph. He opened the manual and started reading: *"Before you read any further, please set up your WRITE-A-MATIC Training Guide."* Ralph reached under his desk and pulled out the training guide. It was a stand-up booklet with simplified instructions (according to WRITE-A-MATIC, INC.), and pictures to assist the computer novice.

Ralph opened the guide to page one. He then continued reading in the WRITE-A-MATIC manual. *"GETTING STARTED. Please turn your training guide to page three and look at paragraph one."* He turned to page three and looked at paragraph one. The training guide said, *"This guide is broken down into three sections: Short Course (lessons 1-7), Medium Course (lessons 8-15), and Extended Professional Course (lessons 16-33). If you plan to type ordinary letters, please turn to page eight in your manual and use the short course outlined there. If you are interested in more advanced work, including formatted pages, searching, etc..., then please turn this guide over and look for page 33. Then turn to page 61 in your manual. If you are a professional writer, please turn to page 20 in this training guide and go to page 97 in the operators manual. Please allow at least 135 hours to become completely familiar with this program. For further questions, please contact your dealer or WRITE-A-MATIC, Inc., Washington D.C., 20330"*. Ralph put the manual and training guide away. "This program was probably written by the Pentagon or something!" Ralph fumed.

After filling his cup with fresh coffee, Ralph started typing. "I'll just open the manual when I run into trouble," he thought.

That evening, when Leo stopped by to see how Ralph was doing, he found his friend sunk into an easy chair, with his head buried in the WRITE-A-MATIC manual. "Say, Ralph, how's it going?" Leo asked. "This is not fun!" Ralph snapped. Leo sat down. "Well, nobody said this was going to be easy," he said as he picked up the training guide. "Maybe I can help you a bit."

Together they read through the manual and training guide. After dinner Ralph sat at the keyboard and wrote a simple document while Leo watched over his shoulder and offered advice. "I think I understand it," Ralph allowed, turning the system off. As he headed for the door, Leo told Ralph not to worry too much about making mistakes, and to call if he needed help. Ralph said, "Thanks. Goodnight."

The next day, Ralph started working on "The Llama And The Lion". His word processor seemed to be working properly. Still, Ralph wondered if he had made the right decision. "I better learn to use this thing quick, or I'll be using the old Selectric again," he

mused as he poured a cup of coffee. His thoughts turned to his work.

Learning how to use a CP/M word processing system can be frustrating and time consuming. Ralph felt that he was spending time doing things that had very little to do with writing. He was now skeptical of how a computer would help him become a more productive writer.

Meanwhile, Elizabeth has been learning about her new QX-10. Let's see how she is doing.

"Are you sure I should do this?" Elizabeth asked her husband as she typed. "Of course," he reassured. "Once you make the change, you'll have a bunch of new options open to you." Elizabeth pushed the MENU key and waited for the program to load. Then she selected the Menu of Applications option on the left disk drive. The screen gave her the choice of running three different programs. She selected SETUP. Once in the SETUP menu, Elizabeth moved the cursor to the Experience Level option. Then she changed the operation level from "Novice" to "Expert". Richard smiled. "See, honey? Now you can try out the "Disk Management" features and see if the disks I bought you are any good." "What do you mean by 'Disk Management'?" Elizabeth asked. Richard pushed the

COPYDISK key on the keyboard and explained. "Once you are in the "Expert" mode, the system will let you use some programming-like tools, such as checking disks to see if they are any good." By this time, the screen was at the Disk Management menu. "Push the one marked 'Bad Sector Check' and watch what it does," Richard suggested. Elizabeth made the selection and the program started examining the disk for errors. "How do you know all this stuff?" Elizabeth asked with a slightly suspicious tone. "I've been sneaking into computer stores and learning all I could," Richard said grinning. "That's how I knew it was the right one for you! And besides, this is easy. If I wasn't here, you'd figure this stuff out on your own!" Elizabeth smiled and kissed him on the cheek. "Well, I'm glad you're here!"

Elizabeth and Richard are not exceptions to the rule of learning how to use a computer. With simple English words and instructions, the entire VALDOCS *system can be mastered with little or no training. The confidence this builds in a person allows room for better productivity, and motivates one to learn more.*

WORD PROCESSING VALDOCS STYLE

Ralph was excited. His word processing troubles seemed to be at an end. He was about to start a new project and could no longer deal with the complicated series of commands needed to manipulate his Viks Vapo computer. Elizabeth Pilks, his publisher, had suggested the Epson QX-10, so Ralph tried one out. It was instant love! He loved the keyboard. He loved the screen. He loved the function keys. Most of all, he loved the word processor and the VALDOCS *system.*

Ralph finished counting out the money and returned it to the envelope. "Okay," he said. "The cash is all here. I hope you love your new computer. Thanks!" Ralph waved goodbye to the new owner of his Viks Vapo. The computer had gone to a good home, someone who was looking specifically for a used Viks Vapo II. The next day Ralph picked up his new computer system, the Epson QX-10, and a new FX-80 printer.

Ralph was going to try a new style of writing. He was going to try his hand at writing a screenplay. This was a new concept for Ralph, but after speaking with Elizabeth, and using the VALDOCS system in the store for only a few minutes, he knew the QX-10 would make the project more manageable.

Ralph turned the QX-10 on, inserted the disks, and watched as the system checked it's hardware and booted up. After the message, "WELCOME TO VALDOCS VERSION 1.18" appeared, Ralph pressed a key and the text editor appeared. He tried writing a few lines. Then he pushed the STORE key. A message appeared that read: "NOW STORING DOCUMENT ON DISK... PLEASE WAIT". After a moment, another message appeared asking Ralph to give his document a name. So Ralph typed, *"Louie tests out a QX-10"*, and pressed the return key. The document was stored and given a directory name. The system returned to the editing screen and Ralph was ready to start a new document. "This is so easy!" Ralph thought to himself.

"Now, let's see... if I'm gonna write a screenplay, I'll need to use different margins. I wonder how I'll do that?" Ralph looked at the blank screen and thought. Then his face brightened and he pushed the HELP key on his keyboard. There he saw the option to let him change the margin settings. Following the instructions on the screen, Ralph changed the right margin to 60 and the left margin to 20. "Now, how do I save this format?" Ralph wondered. He could find nothing to help him in the manual. So he picked up the phone and called Elizabeth.

"Hello, Liz? This is Ralph." "How are you, Ralph? Congratulations on your new system! Don't you just love it?" "Thanks," he said, "Yes, I don't know how I ever used that other one. But right now I need your help. I want to store two separate margin settings and I don't know how." Elizabeth laughed. "Listen Ralph. There's a neat trick Richard figured out to do that. Write down these instructions." Ralph wrote down the directions for storing multiple formats. He thanked her and hung up.

Before he started, Ralph used the SETUP function to bring his experience level up

to Expert. He then returned to the blank editing screen. After setting his format for dialogue, Ralph pushed the CONTROL and Q keys. He selected the option "〈I〉ndexer Active", and pressed RETURN, which toggled the index off. Next, he pressed the STORE key. A message appeared that read, "Do you really want to save a blank file? (Y/N)". Ralph typed a "Y" then pressed the RETURN key. Another message appeared asking him to name his file. After storing the blank screen format as "F1", Ralph set the margins for the descriptive format. Then he repeated the procedure and stored that format with the name, "F2". Now he had two formats for the basics of screenwriting.

"Okay, lets get goin'." Ralph was ready to begin. He pressed the RETRIEVE key, asked for format "F2", and began typing the description for scene one of his new epic thriller, "The Llama Drama."

When it was time for Louie the llama to speak, Ralph retrieved format "F1" and the margins automatically changed. *"My name is Louie and I'm a Llama!"* Ralph chuckled aloud as he typed. Ralph was so thrilled with the ease of the word processor, he ignored the rest of the keyboard entirely, and concentrated on getting his thoughts down.

After writing for several hours, Ralph came to a resting point. As he backed up his disks, he called Elizabeth. "Liz? Listen, I just wanted to call and thank you for the directions for VALDOCS. This Epson QX-10 is really fantastic. I wish I knew about it when I first started looking for a computer." Elizabeth was pleased. "I'm so glad you're having good luck. I love my system, too. In fact, I've got to get back to work. I'm working on a new project that will amaze you!" "Tell me!" Ralph demanded. "Nope! It's a surprise! You'll just have to wait..." Elizabeth hung up.

Ralph glanced at his watch. "Well, I guess I can work awhile longer," he thought as he reloaded his file into the QX-10's memory. After typing for a few minutes, curiosity got the best of Ralph. "I can't believe how easy this is! I think I'll try a few of these typestyle keys and see what happens."

The next time Ralph came to a section of dialogue, he pressed the ITALIC key. From that point on, all of the text was displayed on the screen in italics. At the end of the dialogue, he pressed the ITALIC key again, and the rest of his text was normal again.

"Let's see what happens when I write Louie's name here," Ralph said as he pushed the BOLD key. As he typed, the name Louie appeared in boldfaced text. "This is so neat!" Ralph was pleased. He went back and used the BOLD key to highlight all of the characters names. Then he used the ITALIC function for all of the dialogue.

After typing for a while, Ralph decided to edit the work he had completed. He made his way to the third page, when he found a section of text that he felt would work better on page two. "Now, I've got to figure out a way to move this paragraph." Ralph pushed the HELP key. In the HELP menu, there was a section marked: "〈B〉lock (move, copy, store, etc.)". Ralph typed a "B" and the Block Menu was displayed. Ralph selected the "〈M〉ark a Block" section and marked the beginning of the block. Based on his prior experience, he knew he had to mark the end of the block as well. This time, Ralph decided to try something other than the HELP key. He pressed the CNTRL key and the B at the same time. The same Block Menu appeared. "Not bad...," he thought as he marked the end of the block. He moved the cursor to the middle of page two and selected the Block Menu again. Ralph selected "〈R〉elocate Block to Cursor" and ... Voila! The text was moved. "Unreal!" he bellowed. Ralph stored the text and made a back up copy of his work disk.

Ralph reloaded the text and started reading. "I'm tired of South America," he decided. So he pushed the HELP key again. Ralph looked at the options available and

selected 〈 L 〉ook-for (find, replace, etc.). Once the menu appeared he pressed an "R" and then the RETURN key so he could "Replace" text. Ralph typed *"Puerto San Remo"* when he was asked for the word he wanted replaced. *"Chicago"* was the name he selected as his new location. When Ralph pressed the RETURN key, a message appeared that read: SEARCHING TEXT. He waited. After a few moments, the screen displayed the last few lines of the document. Ralph started moving through the text backwards. Everyplace he had seen *Puerto San Remo*, the word *Chicago* now appeared. "I love it!" he exclaimed as he pressed the STORE key to save his altered text.

"I wonder what this looks like printed?" he pondered as he checked to see that the printer was switched on. Ralph pushed the PRINT key. When he was asked for the name of the document to print, he simply pushed the RETURN key. Ralph had read that he didn't need to keep typing in the name of the document he was working on as he performed the various functions on the system. Only when he wanted a new document or wanted to change the name of something, did he need to type in the actual words. Once in the PRINT menu, Ralph selected single copy, doublespaced, and pressed the PRINT key again. Almost immediately his FX-80 started printing chapter one of Ralph's screenplay.

Because of his previous computer experience, one can imagine how delighted Ralph was in discovering how user-friendly the QX-10 was! His manual even told him that the best way to learn the system was to experiment. It also reminded him that it was impossible to damage the system by trial and error. After about an hour, Ralph was able to work with the system effectively enough to get a good start on his manuscript.

JENNIFER

The concept of the portable computer has taken the microcomputer industry by storm. The ability to take your work with you and manipulate programs and data in the field is mind boggling! In fact, ten years ago, if you were to mention the idea of a portable computer sitting on your lap in the middle of Lake Placid, you would find yourself locked up in the "Mr. Potato Head Farm"!

Many people have struggled in trying to reach a decision about buying a portable vs. a desktop computer. Most portables seem like desktop systems that have been crammed into traveling cases with straps. Because of this, either power or expandability (or both) is often limited. Many of them weigh too much to be easily moved (some weigh more than 30 pounds!), and almost all of them require a wall power outlet to operate.

The Epson HX-20 is really a transportable, fully functioning, independent computer system. The HX-20, with a built in printer, data cassette drive, word processing software, 16K of RAM, 32K of ROM, display, full size keyboard, function keys, and two serial ports, retails for under $800.00.

Unlike many other systems, the HX-20 will run on battery power for up to 50 hours between charges. Plug it into the wall overnight, and in the morning it's rarin' to go again.

There are many different reasons to get a portable computer. Let's take a look at a young lady who has a good application for an HX-20.

Jennifer had applied for an outside sales position selling advertising for Pilks Publishing Corporation. She had not heard a word from them for over two weeks. In fact, Jennifer had just about given up, when she received a letter asking her to show up at the personnel office the following Monday.

Jennifer wanted this job more than anything in the world. She had spent some time working at several large companies as an "inside" sales girl. She answered the phones and took orders. Boring. Working for Pilks would give her the chance to get out in the field and meet people. Yes, she would get this job! She would become their number one sales representative! All she needed was an edge. Jennifer knew what would give her the advantage over her peers: she would use a portable computer system to record sales in the field.

The idea of showing up at the personnel office with a computer under one arm was very exciting to Jennifer. The only problem was to find out which system was best and affordable.

The weekend before her interview, Jennifer set out in search of a portable com-

puter. She looked at half a dozen of them without finding one she really wanted. Some were unattractive to her. Many were cumbersome and she feared she would look like a clod carrying a large metal box around with her.

Then, in one small store, she found what she was looking for. She was playing with a home computer system, waiting to be helped, when one of the salespeople walked out of the back room carrying something in his hand.

"What's that?" Jennifer asked the salesman. He looked at her and smiled. "That's what everybody asks. Here..." He offered her the small computer. "Incredible, isn't it?" the salesman smiled.

Jennifer took the computer from the gentleman and placed it on her lap. "It's just what I've been looking for!" she said running her hand over the keys.

"This is the Epson HX-20 portable computer," the salesman explained. "It's out of this world! You can use it for word processing, BASIC programming, and much more." "I use it for following up on my field sales calls. I just plug a modem into it at any telephone, and call the office to get my messages off the main system." "That's exactly

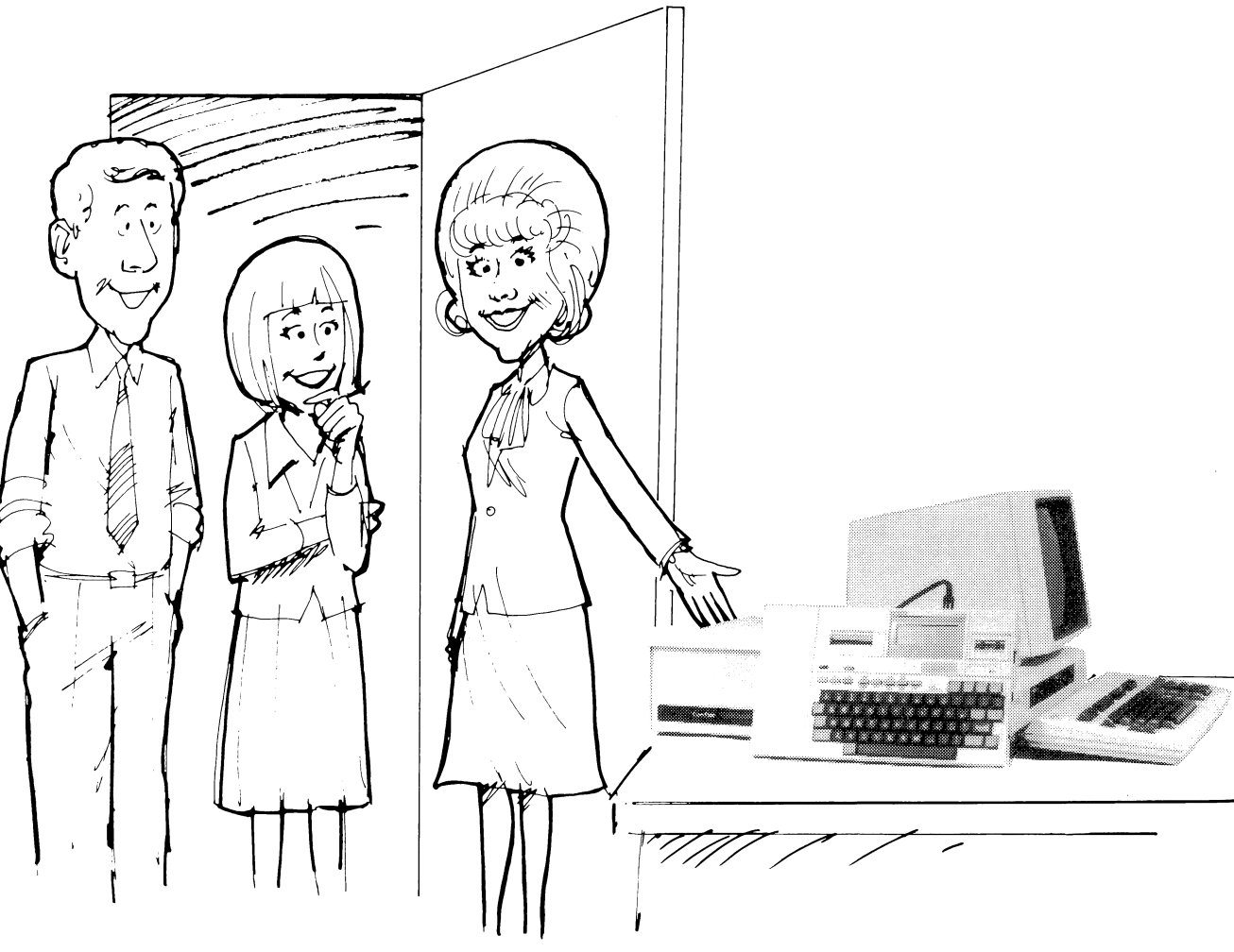
what I was going to use it for! But what's a modem?" Jennifer asked. "A modem is a device that will allow the HX-20 to talk to other computers," the salesman said. An hour later, Jennifer left carrying the "edge" she was looking for.

Monday morning Jennifer was up bright and early. Armed with her HX-20 she set a determined pace for the Pilks building.

"Mr. Jetson will see you now." Jennifer stood up and smoothed her skirt. She followed the receptionist into Mr. Jetson's office. "Hello, Jennifer, it's nice to meet you. Have a seat." Mr. Jetson arranged a chair for her and returned to his own. "Your resume looks very interesting. Tell me a little about your previous position." Jennifer removed the HX-20 from her briefcase and began to print out some notes about her background. "What's that?" Mr. Jetson said. "This is the Epson HX-20! Would you like to see it?" Jennifer handed him the notebook-sized computer. Mr. Jetson examined the tiny system. He picked up the phone and pushed several buttons. "Liz, would you come down here for a moment? There's something I think you should see. Thanks." Jennifer bit her lip. "Maybe I shouldn't have done this yet..." she wondered. Mr. Jetson turned the HX-20 over, looking closely at its features. It seemed that he was familiar with the unit. Jennifer watched him nervously and wondered who Liz was.

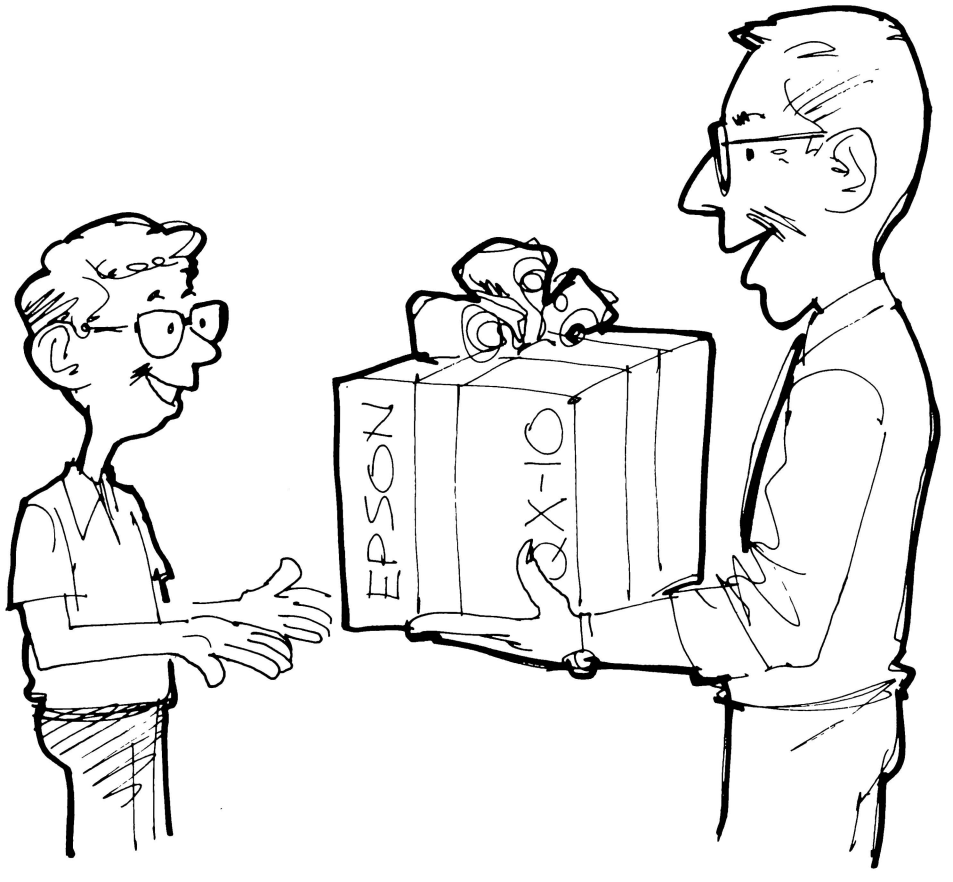
There was a knock at the door. Mr. Jetson stood up and called out, "Come in." "Hello, George." Elizabeth smiled as she entered the room. She turned to Jennifer. "I'm Elizabeth Pilks. Who are you?" Jennifer stood up and shook hands with Elizabeth. "I'm Jennifer O'Brian." Elizabeth looked over at George. "So, what do you want me to see?" she asked. George handed her the HX-20. "This young lady brought this in to take notes during her job interview." Jennifer relaxed when she saw Elizabeth's face light up. Elizabeth pulled up a chair. "Well, Jennifer, perhaps you would care to tell us why you are using this computer?"

"Well," Jennifer began. "This HX-20 can come in handy when I'm out making sales calls. It has a word processor and a little cassette to store my notes on. I can also keep track of all my clients and products. It will print out things like ad rates and available time slots, so I can schedule each client while I'm there. I wrote a little program in BASIC to help me do that. When I get my modem, I'll be able to send this information to other computers. Right now, I just hook it up to my printer at home and take the information with me. I thought I might have a bit of an edge if I used a portable computer." Elizabeth handed the HX-20 back to Jennifer. "I hope you don't think I was taking advantage of this interview or anything," she said. "Nonsense!" Elizabeth assured her. "I happen to be very interested in your ideas. Why don't you come upstairs to my office? I have something to show you."



As Jennifer entered Elizabeth's office, she immediately understood what all the fuss was about. On a small table next to Elizabeth's desk sat an Epson QX-10. Plugged into the QX via a cable, was an HX-20. Jennifer nodded and said, "I should have guessed!" Elizabeth grinned. "Needless to say, you've got a job!"

The HX-20 can be a useful tool when going places. There are many times when taking notes just doesn't seem to be enough. A more efficient way to record data is through the use of a portable computer. Along with a telephone modem, transmission time from field to office computer is only a matter of minutes.



LARRY

Although one of the most pleasing aspects is it's ease of operation, the QX-10 is also a powerful programmer's tool. Besides the flexible and expandable hardware layout, the system includes MBASIC version 5, developed by Microsoft. This language allows you to learn programming skills and develop your own software.

This chapter is not intended to be a BASIC training manual. Instead, it will outline what can be done with BASIC and show how it is implemented on the QX-10.

Of all the high level languages, BASIC is the most common among micro-computers. BASIC is taught in most schools that support computer departments. As it's name suggests, BASIC is exactly that; very simple and straightforward. It is not very fast or elegant in design. At the same time, it is easy to learn and has enough power to create very sophisticated programs.

MBASIC version 5 is very powerful and complete. The language is completely disk based. Updates are distributed with new diskettes. If you want to know more about MBASIC, the books Microsoft and Epson recommend are:

*Albrecht, Robert L., Finkel, LeRoy, and Brown, Jerry. "*BASIC*". New York. Wiley Interscience, 2nd Ed., 1978*

*Billings, Karen and Moursund, David. "*Are You Computer Literate?*" Beaverton, Oregon. Dilithium Press, 1979*

Coal, James. "BASIC BASIC". *Rochelle Park, N.J.. Hayden Book Company, 1978*

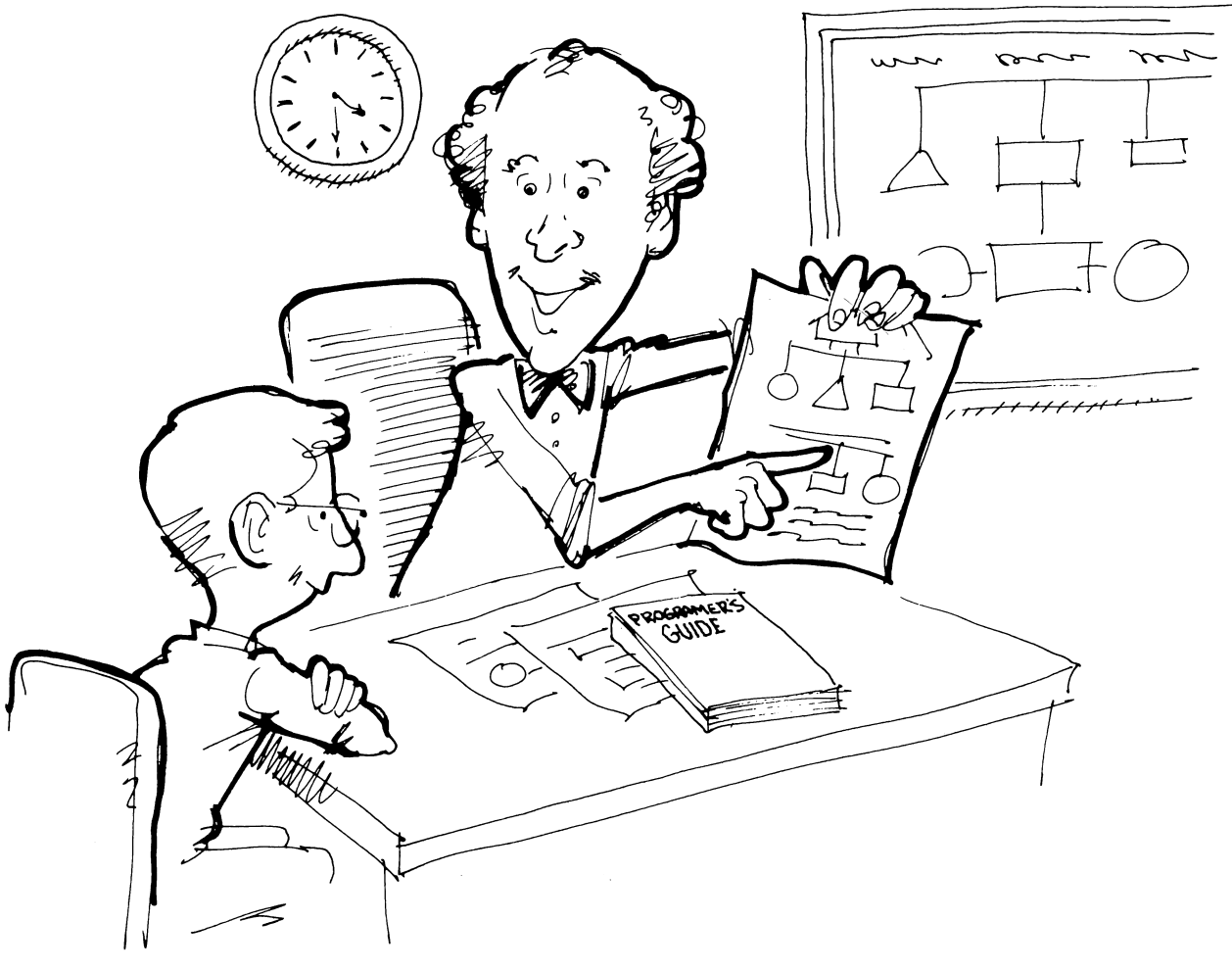
Dwyer, Thomas A. and Critchfield, Margot. "BASIC And The Personal Computer". *Reading, Mass. Addison Wesley Publishing Company, 1978*

Simon, David E. "BASIC From The Ground Up". *Rochelle Park, N.J. Hayden Book Company, 1978*

Larry Denton learned about BASIC in school. His father had been a programmer in the Air Force. Mr. Denton wanted his son to learn more about programming, so he bought him a QX-10.

"Dinner's ready!" Mrs. Denton's voice carried up the stairs into her son's room. "Beat it..." Larry muttered and frowned. His program was nearly finished. Who could eat at a time like this? "Why won't it run?" he questioned thumbing through the manual. His fingers tapped out a frantic rhythm on top of his video monitor. He had begun writing the program a few days earlier. It had taken hold of Larry and refused to let him direct his attention anywhere else.

As he stared at the screen, his thoughts drifted back to school and his Basic Programming course; His teacher, Mr. Bunky, had been patient and supportive. The most important lesson he had directed at Larry was, "Never lose your direction, use common



sense, and keep your pencil sharp at all times." Mr. Bunky had explained that a computer program was simply a series of instructions that told the computer what to do. Each instruction had it's own identification, or line number, and each one was placed in order.

Mr. Bunky showed Larry about program design and flowcharting. In order for a program to work properly, it had to be accurately planned and drawn out. The flowchart would look like a family tree. The main program would make up the trunk section, while all of the separate or "sub-routine" programs would make up the branches.

Once Larry understood the basic concept, he took off like a rocket over mid-Atlantic. He wrote game and graphics programs. All the while, his mind was working, fine tuning itself.

One day, while sitting in front of his computer, Larry had a brainstorm. He would write a business program for his father. A program that he could sell! Maybe he could make a million dollars! Larry pulled out his notepad and started writing a flowchart.

"Judas Priest, Son! Didn't you hear your mother? It's time to eat. Now turn that thing off before I toss it out the window!" Larry's father stormed into the room. "But, Dad, I'm almost done with this *awesome* program for your fertilizer business!" Larry protested. "If I can only fix this syntax error, we'll be in business!" Larry turned back to his flowchart and scanned it for the error. Mr. Denton sat down next to his son and looked at the listing on the screen. It looked like this:

```
780 OPEN "0",1,"LIST"
785 LINE INPUT "CUSTOMER INFORMATION?";C$
790 PRINT #1 C$
795 CLOSE 1
800 OPEN "T",1,"LIST"
810 LINE INPUT #1,C$
820 PRINT C$
```

"Son, you're a mudpack! You've left out the comma in line 790! That's your syntax error." Larry shook his head at his own stupidity as he inserted the comma and saved it to disk. Once that was done, he reloaded the program into memory and ran it.

"Okay, Dad. If this works, I get the car for the whole weekend." Larry typed *'Run FERT. BAS'*, and crossed his fingers. His father looked on with interest. The screen cleared, and then a message appeared "MANNY'S FERTILIZER FOUNDRY Version 1.01". Father and son smiled. "Man, oh, man! The bugger works, Dad!" Larry could barely contain himself. "Well, Son. It sure does. Let's try entering some data and see what we get." Mr Denton pushed the RETURN key. The disks whirred and then the screen said: "PLEASE ENTER DATE?".

Suddenly, the door opened and Mrs. Denton marched into the room. "I hope you guys like cold hamburgers!" she fumed. "I don't, so I'm going out to eat. This computer will force me to leave you and disown my son, Manny. What are you going to do about it?" Mr. Denton turned to his wife and said, "Listen Doris, your son has just finished a program for the foundry. This success calls for a celebration! Of course we're eating out! Larry get your mother's coat!" He tossed the car keys at his son.

Many a programmer made his start in a fashion similar to Larry's. The concept of programming and writing a high level language is very much like riding a bicycle. Once you know how to balance yourself, the rest is easy.

CP/M

Although VALDOCS and TP/M II are designed specifically for the QX-10, and interaction between the user and the computer is paramount, the system is not tied to VALDOCS as its only means of software operation. The QX-10 also uses the CP/M operating system.

CP/M, or Control Program for Microprocessors, is an operating system designed by the Digital Research Corporation. The basics of the CP/M system will be described here, but it should be understood that using CP/M requires some computer knowledge. If you are interested in learning more about CP/M, there are several good books on the subject, including:

"CP/M AND THE PERSONAL COMPUTER" Pub. by Addison Wesley

"INSIDE CP/M" Pub. by CBS Educational & Professional Pub.

"PROGRAMMER'S GUIDE TO CP/M" Pub. by Creative Computing

"PRACTICAL GUIDE TO CP/M" Pub. by Dilithium Press

"HOW TO GET STARTED WITH CP/M" Pub. by Dilithium Press

"CP/M REVEALED" Pub. by Hayden Pub.

CP/M was the first of the microcomputer operating systems designed for more than one specific brand of computer. It was intended to be used with any microprocessor in the 8080 family (8080, 8086, 8088, 8085, Z80, Z80A, Z80B, NEC780). CP/M is an operating environment for executing a wide variety of software programs. It may also be used to develop your own programs.

CP/M manages information by assembling and storing it on disk or in memory. This information is called "programs" or "data files". CP/M can copy data between disk drives, into different blocks of memory, to a printer, or to another computer. It performs these tasks by running various programs called "system utilities". Sound confusing? Well, it can be. Let's take a closer look at CP/M.

The current release of CP/M 80 is called "CP/M 2.2" and is used by the QX-10 as well as many other computer systems. Although there are other versions of CP/M 80 (such as CP/M 3.0 and multi-user MP/M), the QX-10 does not use them as of this writing.

There is really no way to describe CP/M in a non-technical manner. Once you enter the world of CP/M, you are in the "quick" of microcomputer operating systems. We will try to keep this short and understandable.

CP/M 2.2 is a high-performance single-user operating system. It uses (up to 16) disk drives to store and manage information. The system supports a context editor, a powerful Intel-compatible assembler, and several debugger subsystems (if you don't understand, raise your hand). Optionally, CP/M 2.2 will support an Intel-compatible macro-assembler, symbolic debugger, and will interact with various high-level languages such as Forth and Pascal (isn't this fun?).

The CP/M operating system is divided into four parts. The first and most important part is called the *Basic Input/Output System,* or BIOS. This allows CP/M to operate on your brand of computer. The second part is called the *Basic Disk Operating System,* or BDOS. The other sections are called the *Console Command Processor* (CCP), and the *Transient Program Area* (TPA).

The BIOS is completely hardware dependent. It must be rewritten for each different computer. Usually, this process is done by the manufacturer of each computer. Digital Research supplies a standard BIOS with CP/M 2.2, along with very complete instructions to reconfigure the system for a particular computer. The BIOS and BDOS are logically combined into a single module called the FDOS (there will be a quiz later). The FDOS uses the CCP to communicate in earthly terms (like these) with the computer operator. The CCP allows the operator to access and manipulate the information that is catalogued on the disk drive (Author's note: Some computer manuals have 150 pages of this jargon!). The TPA is the area of memory reserved for user programs. In addition, there are a series of utility programs that can be used to transfer information between the memory and the disk drives (or other external devices such as printers or telephone modems).

Most CP/M file names have an "extension" or a descriptive, three-character suffix preceded by a dot or period. Here are some of the more common file extensions found on the QX-10, and their meanings:

.VAL	A VALDOCS text file
.TMP	A temporary file
.BAK	A back-up file
.COM	A command file
.SYS	A system file
.DOC	A document file
.ASM	An assembly file
.TXT	A CP/M or TP/M text file
.OBJ	An object file
.OVL	An overlay file

What does all of this mean? (Well, put your hands down now, we're answering questions.) In basic English, CP/M allows you to run programs.

Obviously, CP/M is not a very friendly or easily understood concept. It is very powerful and can be used to great advantage by the experienced programmer. However, CP/M can be very confusing to the person that simply wants to use his or her computer to perform specific tasks, such as word processing (remember Ralph? He failed our quiz).

Epson realized people would want to use the QX-10 with programs designed to run under CP/M. Yet, they wanted to make sure that the ease of operation remained consistent with VALDOCS. This is why they currently include CP+ with the CP/M disk.

Designed by Taurus Software Corporation, CP+ makes CP/M a *menu-driven* operating system. In some ways, CP+ duplicates the concept of CP/M by providing an operating environment and utility programs. The difference is that CP+ is designed for the novice user.

The key to CP+ is the use of *menu-driven* screens. Menu-driven means that you are asked to make a selection from a series of options displayed on your screen. CP+ will

allow you to access any user files or CP/M programs through the menu options.

Because CP+ is similar to VALDOCS (menu-driven), it is important not to mix the two systems up. When you are using CP+, the dedicated keys will not perform their labeled functions. When using VALDOCS, you are not using CP/M or CP+. However, you can use many CP/M programs with VALDOCS. This is done through the use of TP/M.

TP/M II

Although the VALDOCS software modules are used without the usual operating system commands, there is indeed an operating system involved. The TP/M (Transient Program Monitor) Operating System designed by Computer Design Labs in Trenton, New Jersey, interprets and directs the VALDOCS system, and controls the operating environment of the QX-10.

TP/M is a very specialized operating system written specifically for the Z80 series of micro-processors. In fact, TP/M is a 64K CP/M 1.3/2.2 look-alike. Originally released in 1976, TP/M was aimed at the serious programmer market. It includes all of the features found in CP/M as well as many other commands found in other operating systems. You might consider TP/M a "turbocharged" version of CP/M.

Most of the commands used by CP/M are also recognized by TP/M. However, TP/M may allow shortcuts to be used (e.g. when asking the system for a disk directory, you may use the command "D" instead of the "DIR" command used by CP/M). This comes in very handy when jumping around in the system during file maintenance and programming.

Epson is licensed by Computer Design Labs to distribute a special version of TP/M with the VALDOCS system. Called TP/M II ver.xx, it is designed to work specifically with the QX-10's 256K of RAM.

TP/M II resides on the VALDOCS system disk, and is accessible through the MENU key when in the EXPERT mode of operation.

TP/M II, as it is supplied by Epson, does not currently include the various TP/M utilities. However, you can get a TP/M II utilities disk from your local dealer, or from Computer Design Labs in Trenton, N.J. These programs are public domain (free!). Many of these utilities are similar in nature to the ones found on CP/M disks. Some of the most commonly used TP/M utilities are: ZPIP, SUBMIT, ZDDT, DSTAT, SYSGEN, FILES, COMPARE, KEYSWAP, COPYDISK, WIDTH, SET-TIME, FORMAT 10, MATRIX 3, and FORMAT. Detailed explanations of these utility programs can be found in the book, *The User's Guide To TP/M,* available from your dealer, Computer Design Labs, or Rising Star Industries.

There are a series of built in system commands that you may execute when you leave the VALDOCS environment: **D**irectory, **ER**ase, **M**ask, **P**rotect, **R**ename, **SA**ve, **SP**ace, **TI**me, **TY**pe, **U**ser. Five of the commands (Erase, Save, Space, Time, and Type) require typing two letters before they will function. The other five commands require typing only one letter to implement.

The Internal (resident) Commands recognized by TP/M are:

Directory. This program will display a listing of all program and data file names on a disk.

Erase. This program will allow you to remove programs or data from the disk. Once the old files have been removed, new material may be stored on the disk.

Save. This program will allow you to store all or part of the QX-10's RAM to disk. (NOTE: You cannot get an erased file back! Be sure you want to erase it!)

Rename. This program allows you to change the name of a data or program file. This will not affect the contents of the file.

Space. This program will tell you how much space is left on a disk.

Type. This program will cause the QX-10 to send the contents of any file to the video display, or to a printer, or both.

Mask. This program will allow you to display a set of files with a protection level that will match a mask that you create.

Protect. This program allows you to protect a file from accidental erasure or access.

User. This program allows you to assign a user number from 0 to 255 to each file stored on disk.

Time. This program will display the date and time as kept by the QX-10.

TP/M will execute and run most CP/M compatible programs. If you see a file in the disk directory with a .COM extension (e.g. VERSION.COM), simply type in the name and away you go. When TP/M sees a .COM file extension, it automatically enters it's CP/M 2.2 emulation mode. If the program does not run, it may be that it is looking for a specific keyboard or terminal configuration that the QX-10 does not emulate.

Programs written specifically for TP/M may have a .SYS extension rather than a .COM extension. These programs utilize the extended power of TP/M and may not be compatible with CP/M systems.

One of the very nice features of TP/M II is the ability to read multiple disk formats. Formats for computers such as NEC, Osborne, Televideo, Otrana, and others can be read by TP/M II. This is a breakthrough for computers with 5 ¼" disk drives. Eventually, TP/M II will read any double density, single or double sided 5 ¼" disk (See CP/M-TP/M Transfer Instructions). NOTE: VALDOCS version 1.18 will not read multiple disk formats! You must have the TP/M utilities disk for version 1.18 to read any other format besides Epson!

One of the terms constantly mentioned along with TP/M and VALDOCS is the "ZAPPLE MONITOR". The Zapple Monitor controls all input/output of the system and can be used for system debugging. When in the VALDOCS Expert mode, you may exit to the Zapple Monitor by pressing CNTRL and \ [CNTRL-5CH] (if you have toggled CNTRL-\ on in the SETUP program). The Zapple prompt is a greater-than symbol without a drive assignment. Sometimes, you will see a memory address next to the prompt like this: @E7F0. This is the spot in memory where the system entered Zapple.

The Zapple Monitor is not to be used by Novice users. Don't attempt to use it unless you have the User's Guide to TP/M available to you. If in the middle of a document, you see the prompt near the left margin and your system will not function properly, type a "b". This may return you to the VALDOCS editor. Otherwise you will need to reset your computer to continue. You can destroy your disks (or worse) if you are not well versed in "Zappelese"!

INSTRUCTIONS FOR TP/M-CP/M TRANSFER

THESE INSTRUCTIONS ARE FOR CONVERTING CP/M FILES AND PROGRAMS FROM FOREIGN DISKETTE FORMATS (i.e., NEC, Osborne, Televideo, etc.) TO THE EPSON DISK FORMAT. These instructions only apply to versions PRIOR to VALDOCS 1.18! (1.01, 1.14, 1.16G)

When transferring files from one format to another, please keep in mind that the terminal configuration of the program is VITAL and must be compatible with the QX-10 in order to function properly. If the program disk you wish to transfer does not have a file called "INSTALL.COM", then there is a good chance the program may not operate properly. Remember that each CP/M program has it's own version of "INSTALL.COM". Therefore, one install program may not work with another.

Your QX-10 includes two disks for using VALDOCS. There is a VALDOCS program disk and a VALDOCS data disk. You should also have a CP/M system disk.

If you have reformatted, erased, or otherwise damaged your VALDOCS data disk, please contact your dealer before you proceed any further.

The first step is to format some blank diskettes. Insert your CP/M disk into drive A (left), and a blank disk into drive B (right). Reset your system.

When you see the "A>" on the screen, type "COPYDISK" and push the return key. Follow the directions and format your blank diskettes, then put them aside.

You should now have the CP/M diskette in drive A, and drive B should be empty. When you see the A> on the screen, type COPYDISK again and push the return key. After the program has loaded, remove the CP/M disk from drive A and replace it with the Valdocs data disk. Now insert a blank formatted disk in drive B. Follow the COPYDISK instructions for the "Copy system only?" question onto the blank disk.

After you have finished with the COPYDISK procedure, remove the VALDOCS data disk from drive A and put it away. Take the diskette in drive B and label it: "TP/M TRANSFER DISK". Now put this disk in drive A. Push the reset button. You will see a message about TP/M appear on the screen followed by the A>. You should now have a blank formatted disk with the TP/M operating system on it.

Insert the Epson CP/M disk into drive B. You will now copy the program "PIP.COM". PIP is a CP/M utility program used to copy single or multiple files from one disk to another. This program works with TP/M as well, but is called "ZPIP.COM".

To transfer PIP, type "B:PIP A:=B:PIP.COM" in this exact format, then push the return button. The disks will work and PIP.COM will be transferred from the CP/M to the TP/M disk. You are now ready to transfer programs and files between disk formats.

To transfer a foreign disk format, insert the disk you want to copy FROM into drive B. Place the "TP/M TRANSFER DISK" into drive A. Reset your system. Once the A> has appeared, type "DIR B:" and push the return button. the directory of the foreign

format disk should appear on the screen. If instead there is a message that reads "CANNOT LOG ONTO THAT DRIVE", then the QX-10 WILL NOT read the disk format you want to copy. If you do get a disk directory listing on the screen, then all is well and you may proceed.

Make sure there is an A> on the screen. Once you see the A>, type "PIP A:=B: *.*" in this exact format, and push the return key. All of the files on the disk in drive B will now be copied to the disk in drive A. Once the A> appears again, the copy process will be finished. You may then copy the programs onto a formatted disk with the Epson CP/M operating system, and run them.

EXAMPLE:

(Transferring Wordstar to Epson format, after running INSTALL.COM)

A> dir b: (return)

(your screen will show you:)

INSTALL.COM PIP.COM COPYDISK.COM WS.COM

A> pip a:=b: ws.com (return)

PEACHTREE

One of the promotional packages offered by Epson is something called a "Peachpak". A Peachpak is a group of software made by Peachtree Software, Inc., Atlanta, Ga.. The software includes a Spelling Checker (to find all of your misspelled words), a Mailing List Manager (for additional addresses and mail-merging. Mail-merging lets you use a "form letter" and merge different addresses and names to each one.), and PeachCalc, an electronic spreadsheet (spreadsheets are used for financial forcasting, monthly disbursement statements, etc.). Together, this tidy little package retails for about $300.00. When included in the already conservative price of the QX-10, it becomes an incredible value!

But there are two things that are important to recognize: a) Peachtree and VALDOCS use separate operating systems. Peachtree is CP/M based, and VALDOCS is TP/M based, and b)they may run concurrently!

It is true that many computers can utilize two operating systems, usually CP/M and DOS. But you cannot take a DOS formatted disk and have CP/M understand it, or even read it! Because of the power of TP/M, it understands and can manipulate a CP/M formatted disk. Translated, this means that you can take a CP/M disk and, through one of two procedures, use that program with you VALDOCS files. For example: (You must be in either Advanced or Expert modes to use this method) You have created a document using VALDOCS (a chapter in a book, let's say), and you want to run the Spelling Checker on it to find your mistakes. First, press the INDEX key and find the document you want to spell check. To the right of the name you will see the date and document number.

These numbers are more important than you may think at first glance. If you take the date and alter the sequence of the numbers so that it reads, YYM(M)DDNNN, where (M) is only necessary if the month is more than one numeral (08 would be 8, 11 would be 11). NNN is the document number (including zeros). The best thing to do is write the number of your document down for referencing in the Spelling Checker. Once this is done, simply press the MENU key and Exit to TP/M. (You must be in Advanced or Expert.) When you see the A$\rangle$, REMOVE THE SYSTEM DISK AND INSERT THE PEACHTREE SPELL CHECKER DISK. Then press CTRL/B to reboot the A drive. You must now RENAME the Peachtree file by typing in this exact format:

A$\rangle$ ren sc.com+sp.com

The SP command under TP/M will give you the SPACE statistics of each disk drive. By renaming the Spelling Checker file to "SC", this confusion to the system is eliminated. Your Spelling Checker will now be called by the name of SC. NOTE: When you rename *SP* to *SC*, you will lose the *"HELP"* function in the spelling checker.

When you see the A$\rangle$ again, type SC. This will load the Spelling Checker program and bring up the program menu. From there you chose $\langle$S$\rangle$, and type in the NUMERIC file name with a .VAL extension in this exact format:

Name of document to Spell Check:B:83809003.VAL

The "B:" will send it to the B drive to look for the document. Once it has loaded, you

will see the program take over and read all the mismatched (unrecognized) and misspelled words. When it finishes, you will see another menu with one of the options being to let you see each word and either add it to the dicionary, mark it for correction, skip over it, or back up to the previous word.

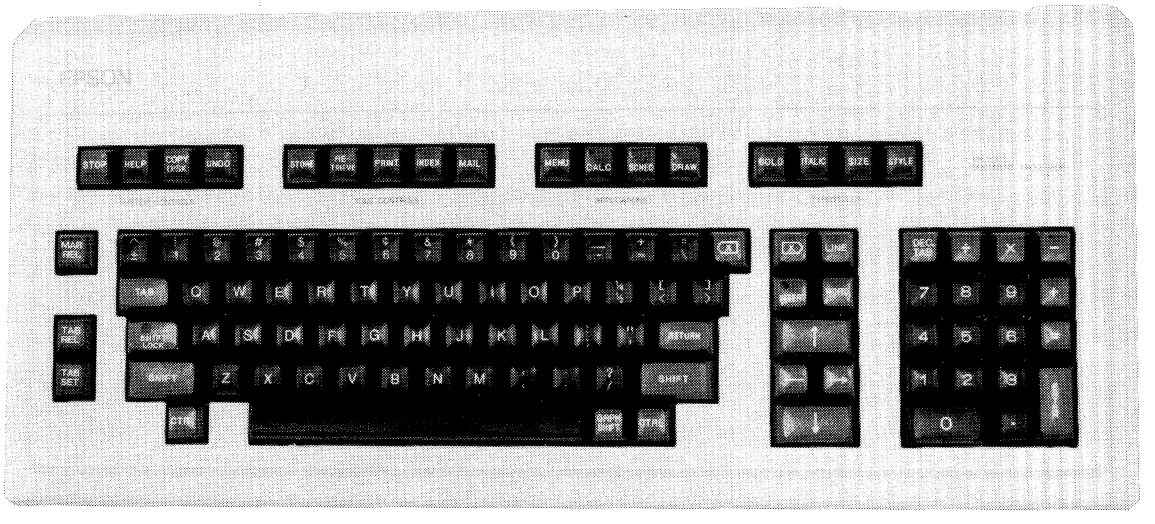
When you have finished, the program will replace the last character of each incorrect word with a "]". You may then use the Find/Replace option in VALDOCS to change each marked word.

The documentation for the Peachtree software is very thorough and easy to understand, and comes with a lesson plan which steps you through all of the functions.

The Mailing List Manager and the PeachCalc are equally easy to use. This is consistent with the ease-of-use of VALDOCS, and is why Epson has chosen Peachtree as a partner software pack.

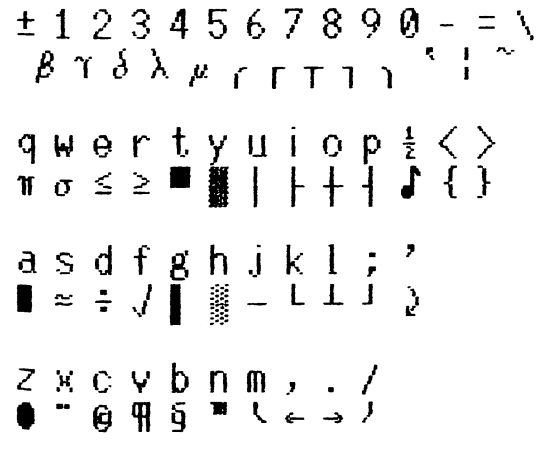
THE VALDOCS KEYBOARD

The VALDOCS keyboard, also known as the "HASCI" (Human Applications Standard Computer Interface) keyboard, looks and works like no other. Perhaps the first thing one notices are the System Control and Application keys. Even more surprising are the keys marked with specific labels such as STORE, RETRIEVE, PRINT, etc... the following are the explanations that will unlock the mystery of using the keyboard that is changing the way computers are used:

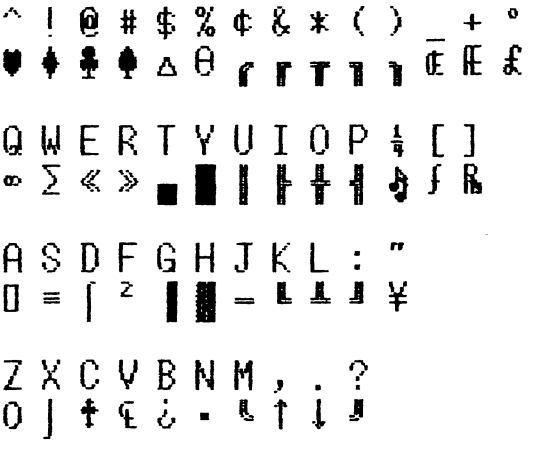


Hidden under the HASCI keyboard are two graphic keyboards, accessed through the GRAPHIC SHIFT and the SHIFT/GRAPHIC SHIFT keys:

GRAPHIC SHIFT



SHIFTED GRAPHIC SHIFT



Let's take a key-by-key look at the HASCI keyboard, from left to right across the top:

STOP

"Wait!!!" Elizabeth screamed. "That's not at all what I wanted to print! STOP everything!!".

Well, that's exactly what the STOP key is for. STOP works in several places in version 1.18, and, in future updates, will work anywhere, anytime in the VALDOCS system. STOP will give you three options during the printing of a document. You may either STOP printing the current file, STOP files waiting to print, or STOP other printing functions, such as MAIL.

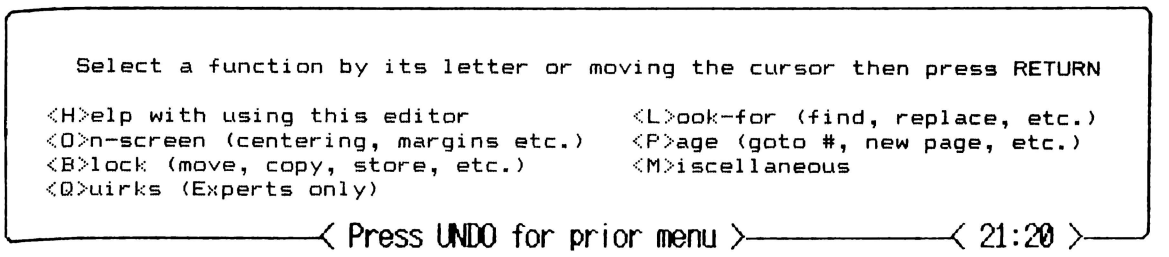
```
      Printing PAUSED.  Choose below to permanently stop:

<C>urrent file printing          <A>ll files to be printed
<S>omething else (such as MAIL)

                  < Press UNDO for prior menu >          < 21:20 >
```

STOP will end most of the COPYDISK functions, and will stop multiple screen commands, such as typing in 20 carriage returns, and waiting for the system to catch up.

HELP

"... I'll just open the manual when I run into trouble...," Ralph said as he worked on his book.

Well, Ralph, Rising Star and Epson know that everyone runs into trouble now and again, so they have provided a "screen" manual using the HELP key. This key is available to tell you what your options are at any given point in time, and how to get to them. In version 1.14, the HELP key only works in three places: twice in the text editor, and again in graphics. Version 1.16 (and on) includes a HELP function at every menu in the system. In the text editor, under all versions, HELP will give you the menu of, and access to, the control key functions. NOTE: See Appendix A.



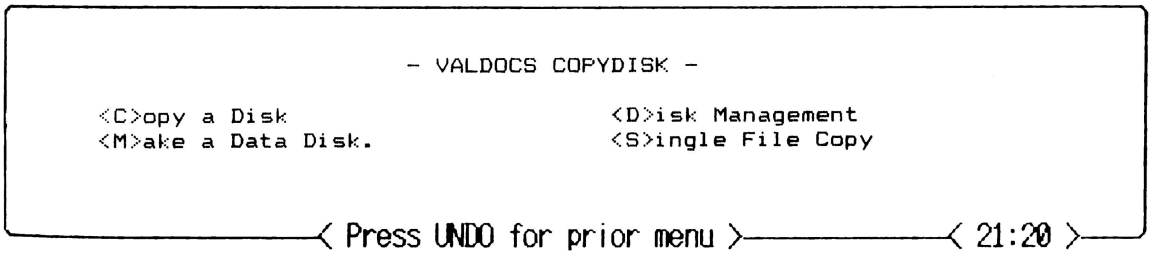
You can move effectively throughout the word processing system without the need of the reference manual. If you chose the "〈H〉elp with using the editor" function inside the HELP menu, you will be shown a page of information telling you briefly how to use the delete keys, how to store and retrieve a file, and how to get an index listing of the files on your diskette. A complete list for version 1.18 of all of the HELP menus and their locations may be found in Appendix A.

COPYDISK

"The wind whipped the office at 45 m.p.h.. Rain pounded on the roof like a hammer on nails. A bolt of lightning, a clap of thunder and..." GZZZZT! Suddenly the screen went blank! Ralph had lost all of his files. His book was nearly complete, when a sudden power surge zapped his disks and set Ralph back three days!

Being able to copy your files and have immediate back-up diskettes is paramount to a dependable computer system. Providing that possibility at the touch of a key can be a life-saver.

When you press the COPYDISK key, you will see the following menu:

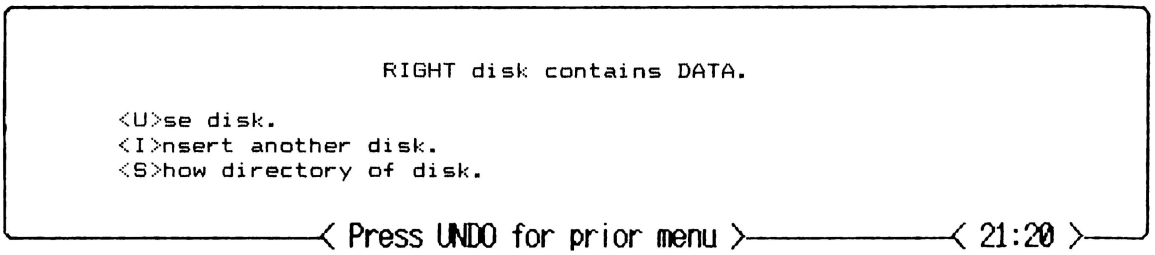


Notice that there is always a way to get out of where you are at the bottom of every menu. In this case, you would return to the editor if you pressed the UNDO key here.

You may copy not only VALDOCS disks but CP/M disks as well through the use of the "〈C〉opy a Disk" function. Once you have selected this option, the system guides you through a step-by-step procedure of where to place each disk, complete with pictures of the drives you will use. Once you have finished setting the disks up, the system takes over and formats, reads, verifies, and copies each track. (You do not need to format a blank disk before you copy to it, unless you are doing a single file copy.)

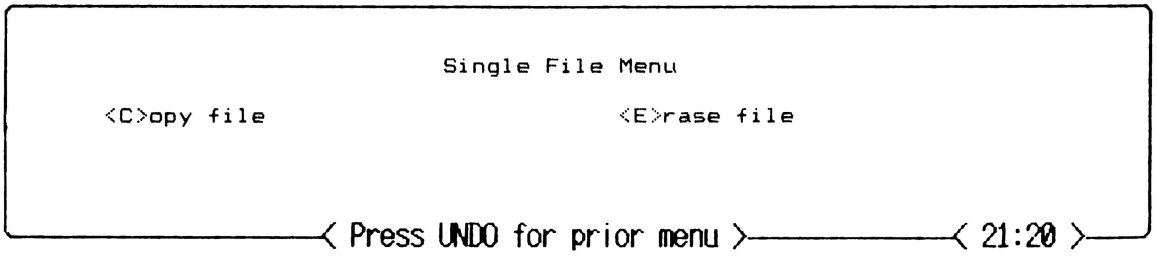
When the copy is complete you will be ready to start another COPYDISK function or return to the editor.

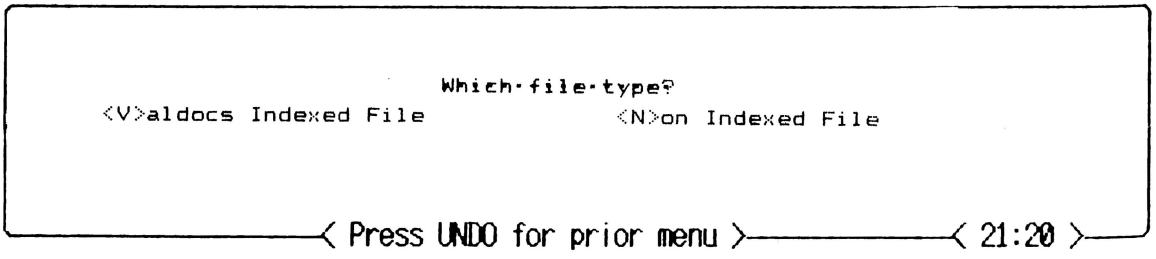
Making a data disk is similar to copying a disk. The system will again show you a picture of the disk drive it wants the blank disk in, and will lead you through all of the steps preceding the actual formatting. If you are formatting a disk that has been used before, the system will acknowledge that there is data on the disk (either indexed or non-indexed files). You will get the following message:

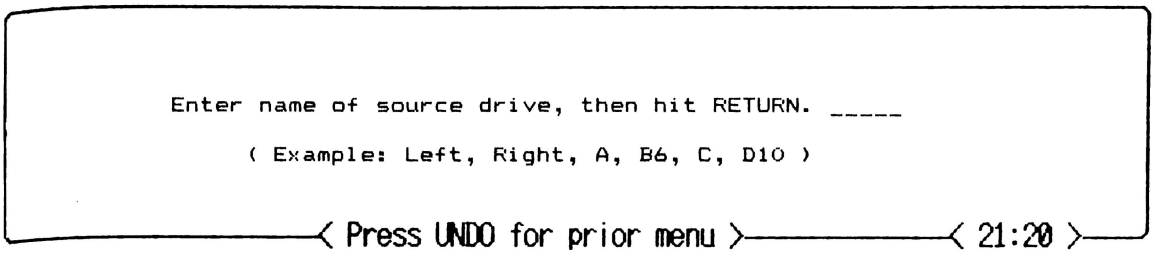


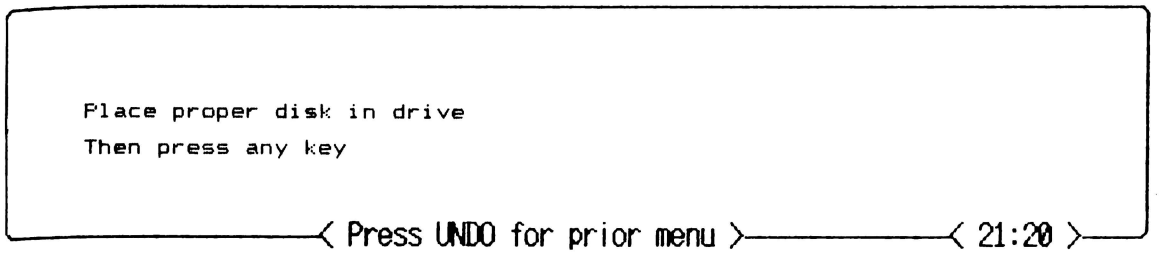
Once you tell the system to proceed and use the disk, it will verify and format each track and sector. It will also create the directory for that disk on track 2.

To copy one or more files to another disk, the "〈S〉ingle File Copy" function will come in handy. You are led through a series of choices where the menus look like this:







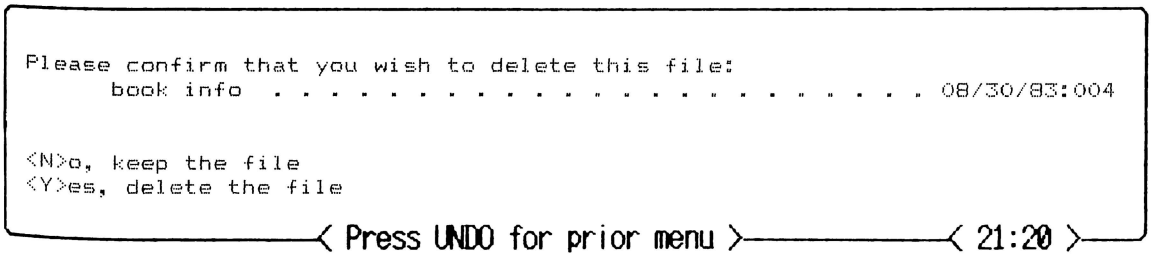


Remove the current disk (if necessary) and insert the disk you will be copying *from,* and press return.

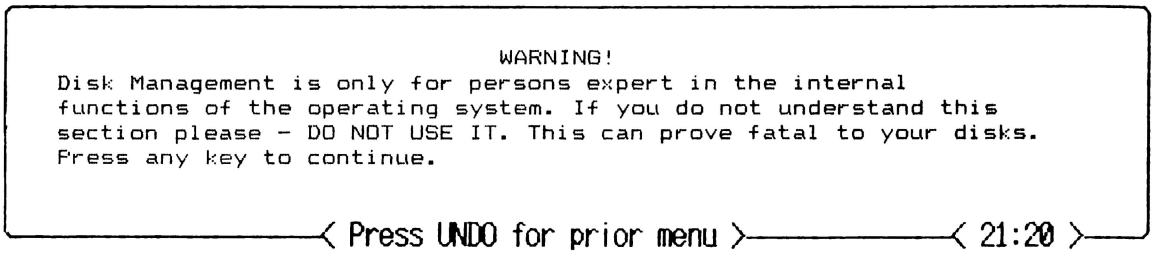
The index for that disk will appear. Type the file name or press INDEX and move the cursor to the file you want to copy. You must then tell the system where to copy *to.* You can copy a file to the same drive. Once that is done, the system takes over and begins the physical copying. You may press the STOP key any time during the copy to halt the process.

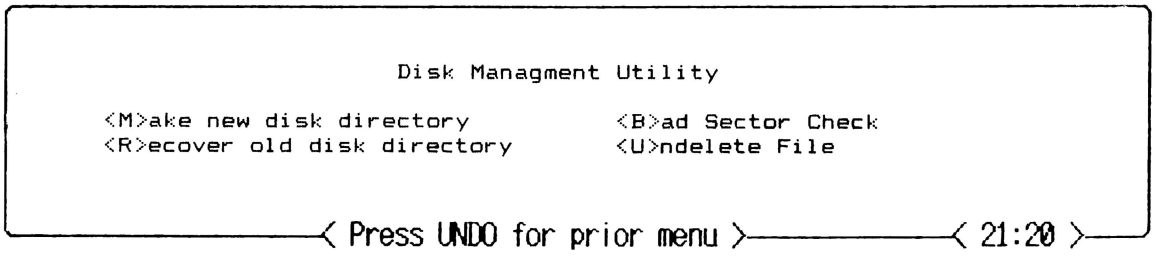
Of course there is always the HELP key if you get confused.

To erase a file, use the " 〈S〉 ingle File Copy" function and chose the 〈E〉 rase file option. You will be put into the INDEX menu with your files listed above. There you will find an option to delete a file. You may chose which file you want to erase, either VALDOCS indexed or non-indexed. Whenever you are erasing something from the disk, the system doublechecks with you for certainty.



Once you are in the expert mode, you will see another option called " ⟨D⟩ isk Management". Disk Management has several features, one of which is called a " ⟨B⟩ ad Sector Check". This allows the computer to examine a disk and see whether or not it is suitable for use. You may also recover a deleted file by using the " ⟨U⟩ ndelete File" option. Two other options in Disk Management allow you to either create a new user directory, or recover an old directory that may have been accidentally marked for deletion.





UNDO

"Darn, I didn't mean to delete that sentence! I really wanted to wipe out the one before it," Elizabeth complained to her husband. "No problem," he replied. "Remember what I told you about the UNDO key?" "Oh yes, never mind!" Elizabeth relaxed as she fixed her text and continued.

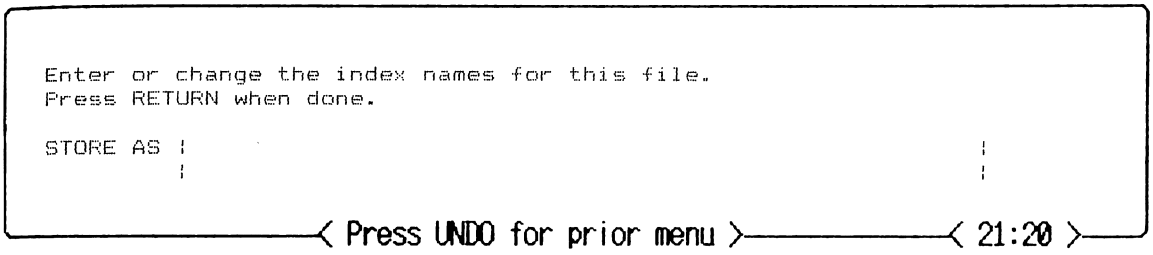
Elizabeth had deleted the wrong sentence from her letter, and could not remember the exact wording to re-type it. Richard had told Elizabeth that the UNDO key will bring back what was deleted on the screen. It will bring ALL of it back. If you have deleted words, characters, or sentences, UNDO will bring each deletion back, one at a time. This can save a lot of typing and even more frustration.

If you are not using the editor, the directions for the UNDO key will be at the bottom of every menu telling you how to get out of where you are, and where you will be. If you are several menus deep in a function such as MAIL, the UNDO key will back you up one menu at a time until you are back in the Editor.

STORE

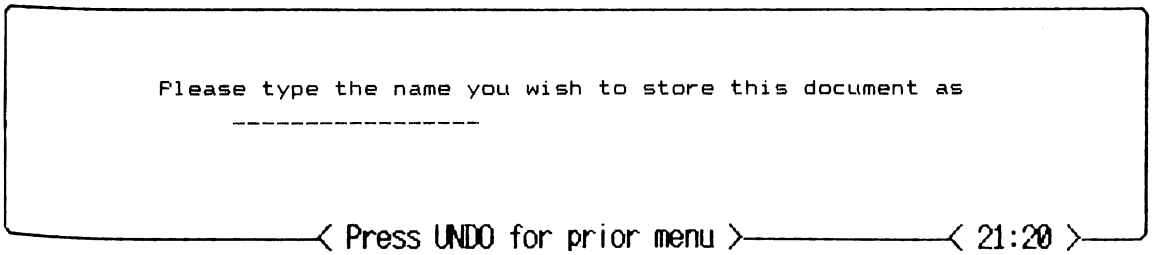
"Lemme see now... *'SAVE FILE'*. Nope. *'KEEP FILE'*. Uh oh. Well, back to the manuals... " Poor Ralph. Nothing he typed on his VVII seemed to be right. There is no room for guess work here. "Oh, ok. *'save b:llama1.txt'*. I knew there was *some* way to save this chapter."

Ralph is trying to figure things out without looking in the manuals (on which his whole career now depends!). If his computer had an ingenious little key called STORE (found *only* on the QX-10), all he would have to do is push the button, and be led through the simple *one-step* process of storing his document to disk. Once you have pressed the STORE key, you will automatically see a listing of everything on your disk, and a menu at the bottom will ask you to name the file for storage. You may use up to *16 separate words* as a file name (not including the 32 most commonly used words, which Valdocs ignores; see Appendix A).



There is no format to follow when typing the name in. Simply press the return key after you have typed the name, and the system will do the rest. After the file has been written to disk, you will automatically return to the editor, ready to start on your next document.

As an option, you may turn off the VALDOCS indexing system (by using CONTROL Q, and chosing " ⟨S⟩ tore as non-indexed file") and save your file in a TP/M format (e.g., *fun.txt*). This is detailed further in Things Your Manual Never Told You, under Version 1.18. When storing files with the indexer toggled off, the storing process becomes much faster.



RETRIEVE

Ralph is now finished writing Chapter 10. However, he needs to go back and change a few thing in Chapter 8. "Ok, I need to get Chapter 8 back. I think I remember how to do that. Uh, *'L b:'*... oh, what was that chapter called exactly?".

With the RETRIEVE key, you don't have to remember exactly how your files were named, or what format to call them back with. You are again given the index listing of all the files on the diskette, and are asked which one you want to retrieve. If you don't feel like typing the name, you may press the INDEX key, and the cursor will go into the index. From there, you may position the cursor in front of the file you wish to retrieve, and press the RETURN key. In a few seconds, you will be back in the editor with the retrieved document on the screen.

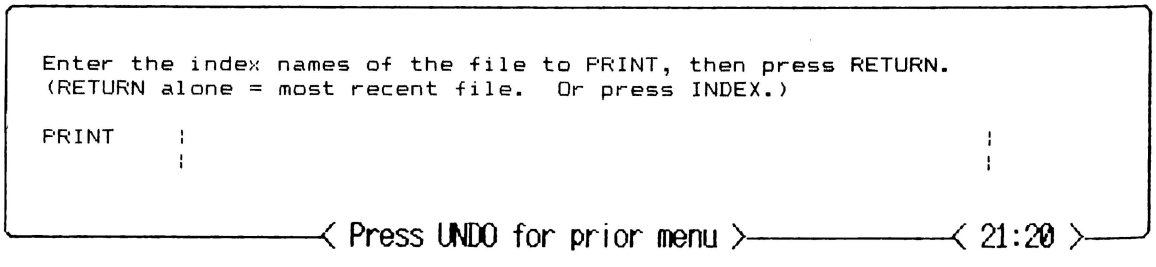
You can only retrieve a graph through the DRAW mode. If you try to call up a graph and you are *not* in DRAW, only the first three characters of the name of the graph will appear on the screen. You will *not* see the graph. To retrieve a graph, press DRAW, and follow the options for retrieving a graph.

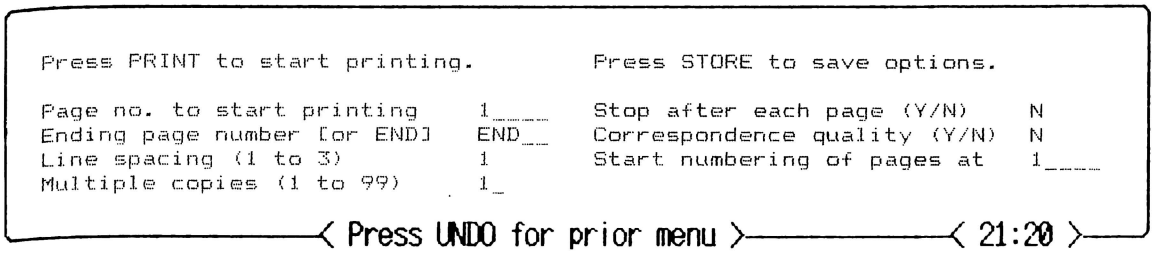
Through the use of the RETRIEVE key also comes the ability to chain files together. By retrieving one file while there is another file in the editor, you will chain the newly retrieved file onto the file in memory at the cursor location. You may then store these as one file (see "Things Your Manual Never Told You).

PRINT

Elizabeth has just finished storing the most wonderful piece of literary work she has ever written. As she brags to the rest of the staff at the office, they ask to see proof of this masterpiece in print. With a push of the PRINT button, Elizabeth is given a listing of her index and an option menu. After she picks out the file to be printed, she asks how many people would like autographed copies? There are only two requests, so Elizabeth designates "two copies" in "〈C〉orrespondence Quality", and again presses the PRINT key. The printer starts printing.

How simple. If you want to print something, press the PRINT key. The options in version 1.18 are as follows:





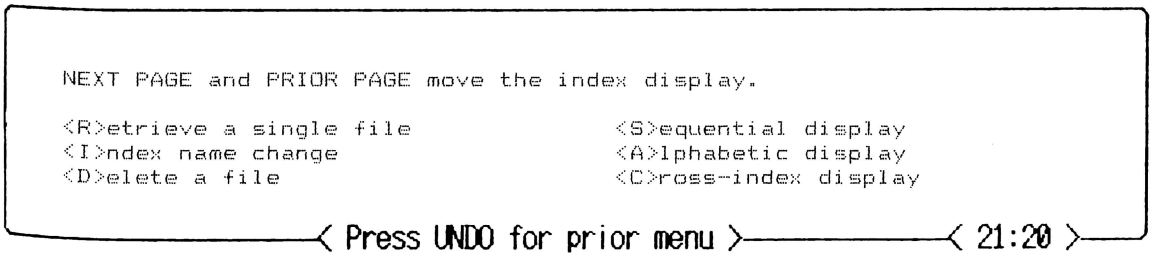
There is automatic page numbering on the bottom center of each page except the first, which can be toggled off only in version 1.18. By changing the starting page number to zero, your document will be printed without *any*page numbers. While the printer is working, you are free to move on to something else, such as writing another letter or any other function. The only time you CANNOT do this is while printing a graph. Graphs are created using something called "bit-image printing". This means the printer will print a line of the graph across at a time until finished. This is specifically designed for the Epson line of dot-matrix printers with GRAPHTRAX PLUS capability. You cannot print graphs on *any* letter-quality printer. Graphs can only be printed, retrieved, created, or edited through the DRAW mode.

Screen dumps are done by the same bit-map process: everything on the screen, will be printed a line at a time. In addition, you may not do anything else in the system when printing a screen dump. Screen dumps are achieved by pressing CTRL and PRINT. Screen dumps may not look correct when using any printer other than the Epson series of dot matrix printers, such as the FX-80.

INDEX

On Ralph's computer, as on many computers, he must type in the "DIR" command to get a listing of the directory on his disks. Although this is easy, let's imagine for a moment that Ralph has only saved *one* file on his system disk. When he types "DIR" he gets a listing of all the system files, including such strange-looking things as PIP.COM, INSTALL.COM, and other various file names. These files are necessary for the system to work properly, but are not really what Ralph is looking for. Then he sees his file, CHAPT3.TXT. If he hadn't named it himself, he wouldn't have known it was something he had created.

Under VALDOCS, the INDEX key lists only the files you have created, including graphs. The system files are shown under another function in the MENU key. This way, you only see your text and graphics files. The INDEX function gives you a menu with the following options:



If the Indexer is turned off (using CONTROL Q) then pressing the INDEX key will display a complete disk directory much like the one on Ralph's system. VALDOCS text files and graphs will be in a numeric format (i.e., 8387001.VAL, or 8364006.GRF). See Things Your Manual Never Told You for an explanation of system-assigned numeric file names.

```
INDXCROS.NDX  ¦ TEXTSTAT.TMP  ¦ TEXTUNDO.TMP  ¦ INDXDATE.NDX  ¦
INDXALPH.NDX  ¦ TEXTWORK.TMP  ¦ 83823005.VAL  ¦ 83823008.VAL  ¦
83823015.VAL  ¦ 83823011.VAL  ¦ 83823019.VAL  ¦ 83823018.VAL  ¦
83823010.VAL  ¦ INDXREF .DAT  ¦ 83823016.VAL  ¦ INDXDATA.NDX  ¦
83823001.VAL  ¦ 83823012.VAL  ¦ 83823003.VAL  ¦ 83823013.VAL  ¦
83822001.VAL  ¦

136 K FREE

Press any typing key to continue
```

MAIL

"Dear Elizabeth, I'm sorry my final copy of 'The Llama and The Lion' is so far behind schedule. You see, I got this new computer, the VIKS VAPO II, and I'm having a little trouble... ". Before Elizabeth received this letter from Ralph, she couldn't understand why he was taking longer to finish his manuscript than he had in the past? Through the use of the MAIL function on her QX-10, Elizabeth sent her editor the notice of Ralph's delay. He received Elizabeth's message two minutes after she sent it on his QX-10. He then printed the message out at the downtown office and posted the message on the "late" board.

VALDOCS has all the necessary software built into it's MAIL option to enable you to send and receive files, deliver messages, and "talk" to other QX-10's with the aid of a telephone modem.

```
Please choose which mail function you wish to use and then press RETURN

   <S>end Mail
   <A>ddress Book                    <I>nbasket - Examine Log
   <P>erson to person or network     <O>utbasket - Examine Log


                  < Press UNDO for prior menu >          < 21:20 >
```

You may send files at any time of the day or night without being present at your computer through the use of a mail timer. Along with electronic mail, you may set up your own address book. A blank formatted disk will hold up to 1,130 individual address files. Under each person's name card, there is a space to enter a communications phone number and a BAUD rate setting. When you ask the system to call someone, it searches through the address book for the correct name and communications phone number. The system then asks you a series of questions about when and how to send the information you want. At this time, ONLY HAYES SMARTMODEMS, COMREX QX MODEMS, AND MODEMS USING THE HAYES PROTOCAL WILL WORK WITH VALDOCS. Refer to the "Communications" chapter for CP/M and TP/M communications to other computer systems.

Another convenient feature of the Mail function is the ADDRESS BOOK. If you are going to use the ADDRESS BOOK for client listings or anything requiring many names being entered, you may wish to dedicate an entire disk as an address book. A blank disk can hold up to 1,130 names. If you have not yet defined an ADDRESS BOOK file, you will see this message:

```
You currently do not have a card file on your disks.
Which disk should I put it on ?

   <S>ystem disk                        <D>ata disk


<Press UNDO for prior menu>                          <21:20>
```

Once the system has designated room for the address book, you will have the options of:

```
Please type the letter of your choice and press RETURN

   <V>iew a name card                   <A>dd a name card
   <D>elete a name card                 <W>ho am I
   <E>dit a name card                   <M>ailing labels
   <C>hange address book size

<Press UNDO for prior menu>                          <21:20>
```

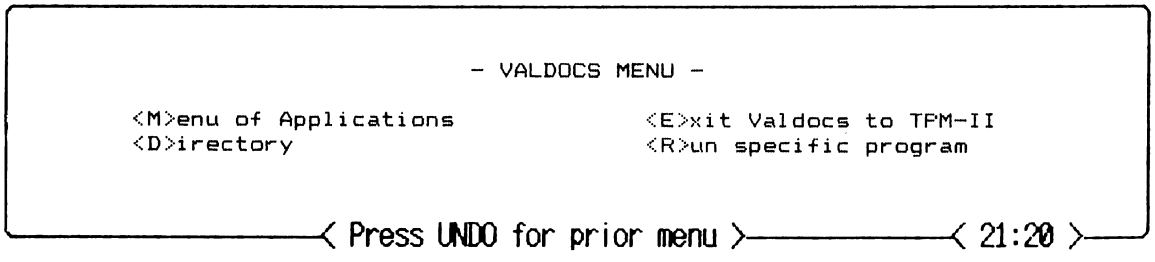
When you add a name card to your files, you *must* fill in at least the *last* name, since this is what the system files names by. At the bottom of each name card is room for two phone numbers: voice phone and communications phone. The voice phone number is for a regular phone number. The communications phone number is for dialing other computer

systems via your modem. There is a buad rate option in the name card. If you use the communications phone number option, you must designate 300 or 1200 baud rate. You must also fill out the "〈W〉ho am I?" option and tell the system "who you are", so transmissions sent will have an originator. You will have to fill out a name card for *yourself,* as well, in order for you to receive incoming data correctly. When you choose to send mail, the system asks you for the last name of the person you wish to send to. If it is a name in your address book the system will scan the address book for the communications number to dail, and automatically check the baud rate. If you are using a 300 baud modem you may only send and receive at 300 baud. If you are using a Hayes 1200 you may send and receive at 300 *or* 1200.

If you watch the transmission being sent and/or received the system could slow down as much as 50%. The VALDOCS' Mail function *will not* merge at this time. However, Mail merging is possible using the PeachTree Mailing List Manager along with your VALDOCS letters when merging them with PeachTree software.

MENU

The MENU key is really the "system" key. Through the use of the MENU options, you may define the layout of the system specifically for your use, including choosing the exact brand of equipment you are using.



There are four levels of operation in VALDOCS. They are Beginner, Novice, Advanced, and Expert. In the Beginner mode, which is what QX-10's are factory set at, you will only see two options under the MENU key. These are "〈M〉enu of Applications" and "〈D〉irectory".

The Menu of Applications is a listing of programs which, when run, have a special system purpose. The application programs on the VALDOCS system disk are: VERSION, RESTART, and SETUP. The VERSION program will give you a listing of all of the VALDOCS programs, the date they were created, their "version" number, the type of file they are (CHN, COM, SYS), and the time they were created. You cannot access any of these files. There are no application programs on the data disk provided with the system. If you ask for the menu from the disk on the right drive, the system will ask you to insert an applications disk. The RESTART program will restart the system, as if you had pressed the reset button.

The SETUP function is perhaps the most crucial of the entire system. Through SETUP, you have the ability to change and assign the following:

```
                    Epson QX-10 Setup Program
                              Main

<D>ate/Time
<C>ommunications Options                1200 Baud
<E>xperience Level                      Expert
<T>erminal Type                         Televideo 920
<P>rinter Type                          MX-80
<M>odem Type                            Hayes

<I>nput and Output Assignments          R=T,P=T,L=P
```

```
Select a CHOICE by its LETTER, or use UP/DOWN arrow keys. Then press RETURN.
Press HELP for Help

                    < Press UNDO to Return to EDITOR >
                                                    < 8:23 P >
```

The procedures for doing each of these functions are as follows:

First press the MENU key. You will see the option for the " <M> enu of Applications". Position the cursor there and press RETURN. The system will then ask you which drive you would like to use. Always chose *drive A*. A list of the application programs will appear. Position the cursor at the SETUP program and press RETURN. The system will then want a COMMAND LINE. There is no command line for any of the programs yet, so ignore this comment and press RETURN. You will then get a list of all of the assignments shown above. To change the settings for each, simply position the cursor where you want to make a change, and press RETURN.

This is the setup menu:

```
                    Epson QX-10 Setup Program
                            Time/Date

                                        Current
<D>ate                                  09/15/83
<S>et Time                              20:35
<T>ime Format                           12-hour
<C>lock Display                         Clock on in VALDOCS and TPM
<S>how Current Date/Time
```

This is the communications menu:

```
                    Epson QX-10 Setup Program
                     Communications Options

                                    Current         Initial
<B>aud Rate                         1200            1200
<T>TY Nulls                         2               2
```

This is the menu for setting experience level:

```
                    Epson QX-10 Setup Program
                           Experience

                                    Current         Initial
<B>eginner                          Beginner        Beginner
<N>ovice
<A>dvanced
<E>xpert
```

This is the terminal setup menu:

```
                    Epson QX-10 Setup Program
                          Terminal Type

                                    Current         Initial
<D>isplay length (24/25 line)       24 Line         24 Line
<C>haracter Mode Terminal Type      Televideo 920
<A>uto switch Bit/Char modes

<1> Bit Mode Repeat rate (cursor)   6               6
<2> Char Mode Repeat rate           3               3
```

This is the printer menu:

```
                    Epson QX-10 Setup Program
                            Printer

                                    Current         Initial
<M> MX-80                           MX-80           MX-80
<B> MX-100
<C> FX-80
<D> FX-100
<E> RX-80
<F> ComRiter CR1
<O>ther
<N>one

<P>rinter Characteristics
```

This is the modem menu:

```
                    Epson QX-10 Setup Program
                          Modem Type

                                                Current        Initial
<H>ayes Smartmodem (also set 1200 baud)         Hayes          Hayes
<C>omrex 300
```

The Input/Output Assignments must remain as they are preset, or the system will not work properly.

The "〈D〉irectory" option may be used on either the system disk or the data disk. The directory will list what Ralph got by typing "DIR" on his computer. All of the system files and the VALDOCS files are listed as if you were in CP/M. The VALDOCS files, however, willbe shown as numeric files with a suffix: e.g., 83705001.VAL. This number is deciphered as "83"=year, "7"=month, "05"=day, "001"=first file created, ".VAL"=VALDOCS indexed file. The numeric file name is shown when you use the INDEX key to look at your VALDOCS files.

To the right you will see the date each file was created, and the "order of creation" number. When you use the COPYDISK function to restore files, the directory is where you w1ll locate the numeric file name with which to call the lost file back. There will also be a number to the right of each file in parenthesis that looks like this: 〈5〉 or 〈0〉. These numbers designate whether or not the file is protected from being erased. There are seven levels of protection for a file. The following are the level numbers and their descriptions:

〈0〉	Default value, no protection
〈1〉	File marker only, no protection
〈2〉	File may be replaced
〈3〉	File may be written to
〈4〉	File may be only added to, not erasable
〈5〉	File may be read by transient programs, not erasable
〈6〉	File may only be executed, not erasable
〈7〉	File will not appear in directory, not erasable or accessable except to the creator.

Level 7 protect would actually be invisible to the user, because it wouldn't even show up in the disk directory. You cannot write to, read from, or see a level 7 protected file. The only person who knows it's there is the person who writes it. You may assign any level of protection to any file at any time, by typing the following command in the format shown here:

A〉 pro filename.suf 〈3〉

"Pro" meaning "protect", then the filename, its suffix, and it's protection level, in this exact format. CAUTION: *If a program can be and is executed through MBASIC, the level of protection will return to level 〈0〉.* Non-indexed files are also shown in the directory, and are shown under their given name.

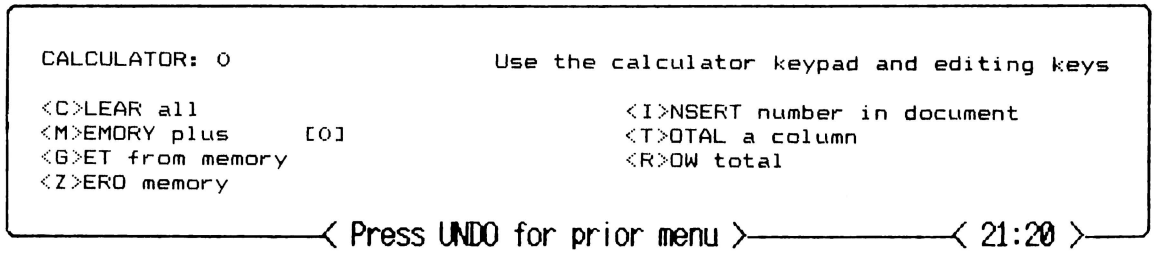
Once you are in Advanced, the MENU key will give you the "〈E〉xit to TP/M" option. If you chose this, you will see an "A〉" on the screen, and will have entered the TP/M operating system. Unless you have a TP/M II disk, or have put programs on your system or data disk for TP/M, your commands are limited. You can type "d" to get a

directory of the system disk, or "d b:" to get a directory of the data disk (or B drive). The system disk that comes with the QX-10 only contains a shell of the TP/M operating system. Ask your local dealer about getting the actual TP/M II applications disk.

If you are in the Expert mode, you will see the option to "<R>un a Specific Program." This enables you to run an applications program without exiting to TP/M first. Simply type the name of the file you wish to run (usually one you have created, or one that already exists on the data or TP/M disk that is an executable file, such as a .COM or .SYS file). For example, you could chose the <R>un a Specific Program option, tell the system to go to the LEFT drive, and get a listing of all the files there. You could then type in *"setup.sys"*, and the system would execute that file, and you would find yourself in the SETUP program.

CALC

"Liz, where's the calculator?" "It's broken, Dick, remember? The last time you used it in the bathtub, it shorted out, and it hasn't worked since! Use the CALC key on the system." Richard pressed CALC and the calculator appeared at the bottom of the screen. Soon he was so absorbed in playing with it, he forgot what he needed to use it for.



The CALC key is a handy tool for simple numeric functions. It is exactly like having a calculator at your side, to be used in the editor mode. If you press the CALC key anywhere in the system besides the word processor, you will be put back into the editing screen with the calculator at the bottom ready to go. If you are already in the editor, and you have typed a row or column of numbers, you may use the CALC key to total them for you. You may then insert the total into your text wherever you want:

125x9+465÷2-100x8=**8** OR

78
95
255
-52
376

For all-around ease of use, the calculator (10 key pad) is conveniently located to the right of the alpha keyboard, with an additional ENTER (or RETURN) key. You also have the advantage of a DECIMAL TAB key to set decimal points consistently throughout your text. It will total *all* numbers in text. If you have two rows of numbers, one above the other, "<T>otal a row" will total *all* rows in the test.

SCHED

Mr. Jetson walked out of Elizabeth's office with a printer listing in hand. He had just finished the employee schedule for the next month and was about to post it on the bulletin board. "Hey, George, did you remember to give me my birthday off?" Jennifer asked, passing him in the hall. "Oh, that's right. No problem, Jenny, I'll change this and have your schedule for you in five minutes." Jenny smiled, "Thanks, G.J.!"

The day-to-day, week-to-week, month-to-month, and year-to-year calendar of events is kept under the SCHED function. When you call the schedular up, you have just opened your appointment book to today's date.

```
PRIOR PAGE gives prior day, NEXT PAGE gives next day.

<W>rite on today's Note Page          <D>isplay Appointment page
<G>oto a specific date                <S>et clock/calendar/time divisions
<T>imer for meeting or event          <I>tinerary printing

<Press UNDO for prior menu>                                  <21:20>
```

From there, you may go to virtually *any* date you wish. You may also "<R>eserve a Block of Time" for scheduled events you do not want to write over. If you designate a block of time to reserve, you cannot write in that space for that day unless you first "<U>n-reserve a block". The cursor will automatically skip over the marked block and go to the next available time. You can still leave messages inside the reserved block if you write them before you outline the times:

```
Appointments: ..... Thursday, September 15, 1983 .....................
 9:00 am Wake The Kids                  5:00 pm.go to the baseball game
 9:30 am                                6:00 pm.
10:00 am Clean the car                  7:00 pm.
10:30 am                                8:00 pm.
11:00 am Call mother-in-law             9:00 pm
11:30 am Call lawyer                   10:00 pm get fuel for the car
NOONTIME drink lunch                   11:00 pm
12:30 pm                               MIDNIGHT
 1:00 pm.sleep                          1:00 am put the kids to bed
 1:30 pm.                               2:00 am
 2:00 pm.                               3:00 am
 2:30 pm.                               4:00 am
 3:00 pm.                               5:00 am
 3:30 pm.                               6:00 am
 4:00 pm.                               7:00 am
 4:30 pm.                               8:00 am
```

```
        Choose your option:

        <E>nter or change an appointment
        <R>eserve a block of time
        <U>n-reserve a block of time

<Press UNDO for prior menu>                                  <21:20>
```

The system knows its leap years, too. If you ask for February 29, 2001, you will see this message:

"Thirty days hath September, April, June, and... Hit any key."

You can then correct the date. When you enter the appointment book, your cursor will be at the top of the time increments, ready to accept text. Moving around in the book is done through the cursor control keys and the RETURN key. After you have entered all of the information for that day, press the STORE key to write your appointments to disk. They may then be called up at any time, as long as you are using the same data disk you have stored them on. It is a good idea to designate one diskette specifically to your schedular, and check your daily/weekly/monthly appointments through that disk only.

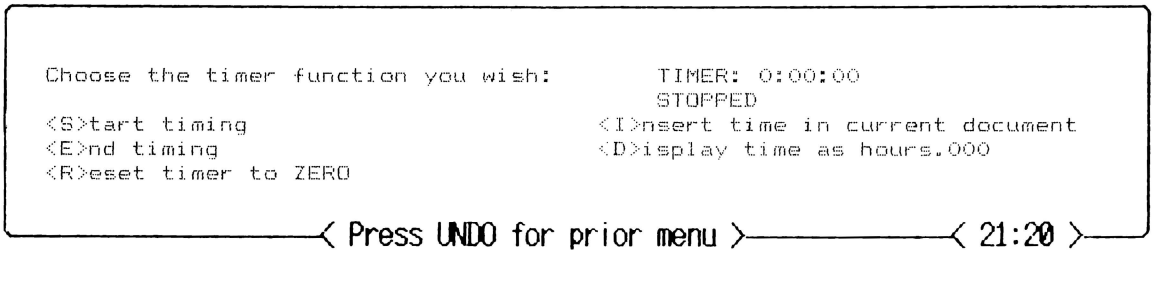
By using the SHIFT and NEXT PAGE (down arrow) or SHIFT and PRIOR PAGE (up arrow) keys, you can page through the schedular one day at a time, forward or backward. Or, you can type "+20" to move 20 days ahead "-3", "2nd Wednesday", "3rd Sunday", will also put you where you want to be. Using the "〈S〉et Clock/Calendar/Time Divisions" option lets you change the time and date increments. The system defaults to half-hour increments from 9:00 A.M. till 5:00 P.M., then to one-hour blocks from 6:00 P.M. till midnight. You must change each time individually. This means you cannot say "change to 15-minute increments", and have the system automatically change all of the increments for you. You must move the cursor to each time division you wish to change, and set it manually. The "〈I〉tinerary Printing option lets you print a schedule for as many days in a row as you wish. For example, you could print out the next month's employee schedule to post it early. The system will ask you for the beginning and ending dates, and print the schedules through the designated days. You have the same option for printing an itinerary of your note pad. This is especially convenient for remembering significant events that are planned far in advance, or for travel schedules and planning.

By using the TIMER SETTING, you have a stopwatch at your disposal. It can be very handy for clocking time spent on the phone or in a meeting, and can be a great tool when used with the calculator for computing billing time.

For example:

The timer has been stopped and the reading is 3.255 hours. Now you may type: 3.255 hrs * $35.00 per hr = $113.93 in the editor. Then use the CALC functions to total and insert the billing amount.

You will not see the actual updating of the time on the screen once you engage the internal time, but you will see the total time when you interrupt or stop it. There is a notation that the *timer is running* inside the menu. You may also insert the time into your text:



The timer may be left on while you go on to other things. When you return to the schedular, you may continue timing or use any of the options. You may also display the timer as HOURS:MINUTES:SECONDS for elapsed time.

The blank NOTE PAD hidden in each day of the calendar is just that, a blank page, or screen, for writing important messages pertaining to that day. When you update your schedular to a certain date, the note page goes with you. You store the messages just as you would store the schedules, by pressing the STORE key.

DRAW

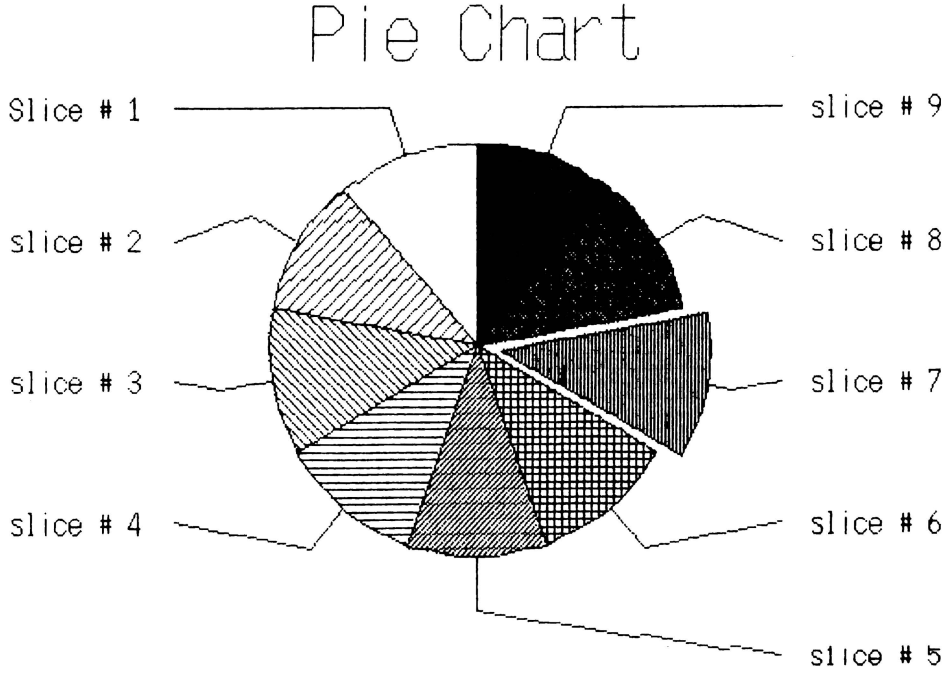
Back at Bob's Business Brokers, the sales meeting was coming to a close. "So, people, we look good this month! This pie chart shows our sales are increasing, and it's all because of you guys! Now let's make next month even better!" Barry beamed at the staff and held up the graph showing a comparison of sales over the last six months.

That's what DRAW lets you do. There are four graphs already created for you. All you have to do is fill in the parameters and press the "〈D〉raw the Graph" option to get a comprehensive business graph.

The HELP key is available throughout the DRAW functions. While defining the specifications of the graph you are working on, UNDO will back you up one menu at a time, if there is an option you wish to change, or, eventually, until you are back in the editor.

PIE CHARTS are *relationally* divided. This means that you do not have to have a perfect 100% total. Your amounts for each slice can be any number or percentage that you want. The system assigns the size of each slice in relation to the other slice amounts.

If you have a slice that you know will be relatively small in comparison with the others, or of significant importance, you may want to answer "Y" for "yes" to "〈P〉ull the Slice From The Center" of the graph for emphasis.



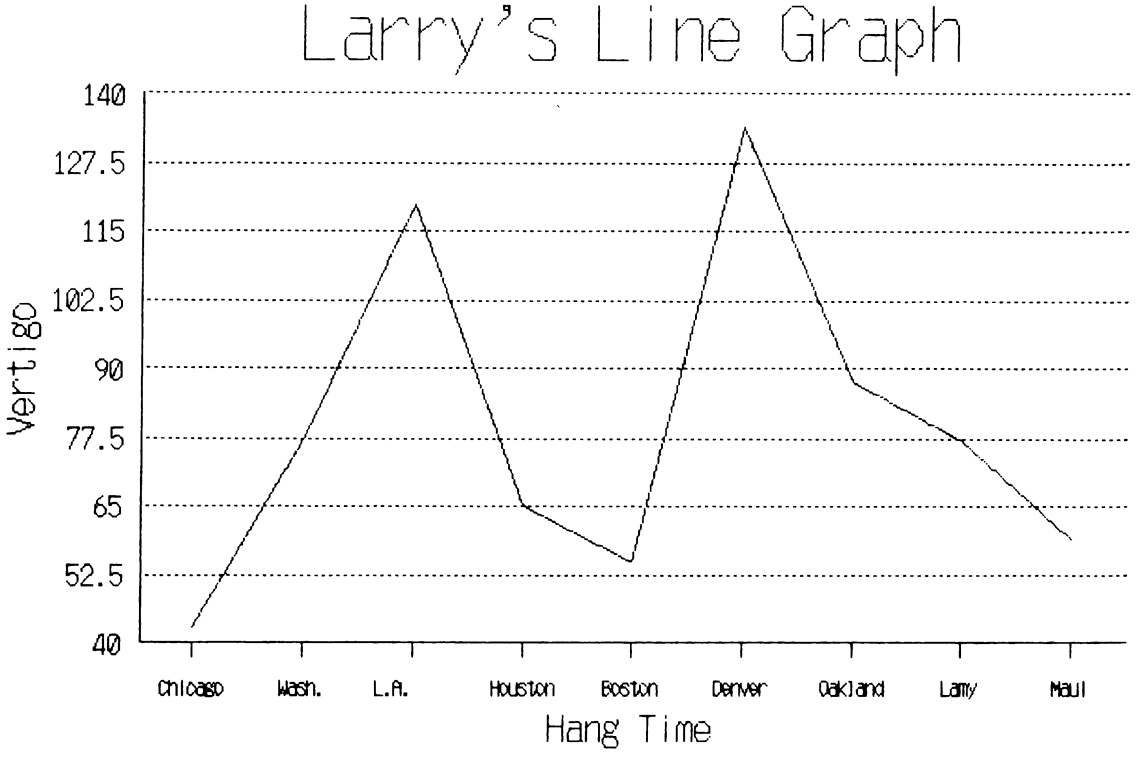
The system literally steps you through each parameter of the graph, asking you for names, numbers, etc.

```
MOVE between blanks with UP/DOWN ARROWS. MOVE between slices
with NEXT/PRIOR PAGE.          ENTER the data for SLICE # 01.
   PULL the slice out from the center? <Y> for YES _
   SHADE this slice (From 0 light to 9 dark)       _
   NAME for this slice                             ---------------
   NUMERIC AMOUNT for this slice                   ----------
                    < Press UNDO for prior menu >          < 21:20 >
```

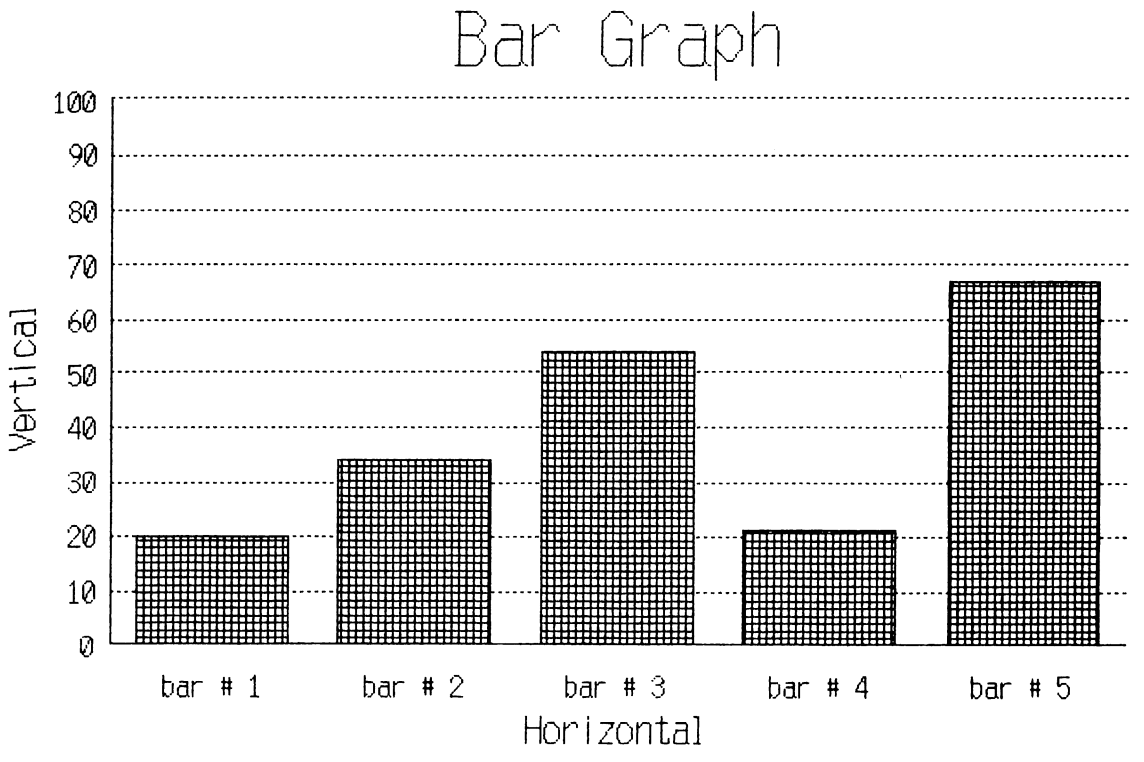
If you accidentally leave out a response to the designated " ⟨N⟩umber of Slices For This Pie," or the " ⟨A⟩ mount For This Slice", you will get a message that says: *"The amount for this slice is missing. Press UNDO to re-edit."*

Each graph is equally as simple to create. After you have finished "filling in the blanks", you can draw it on the screen and see exactly what it will look like before it is printed.

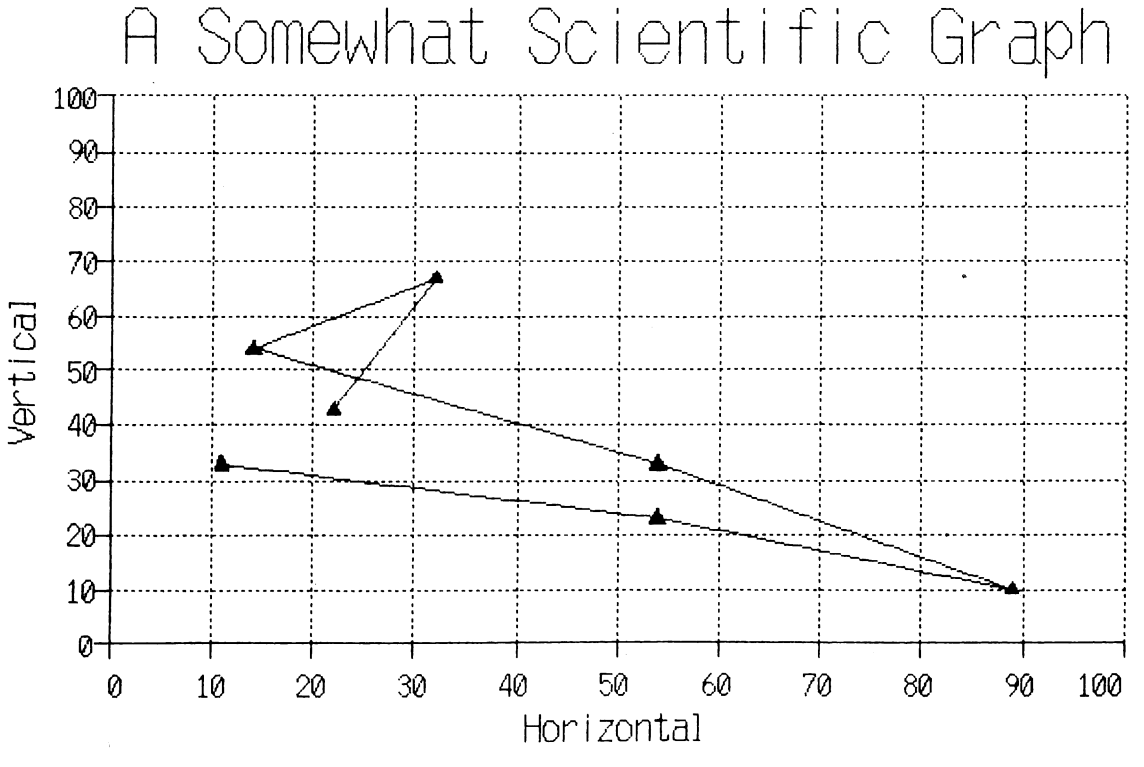
A LINE GRAPH would look like this:



A BAR CHART would look like this:



A SCIENTIFIC GRAPH would look like this:



Whenever a graph is being printed, the system will do a "screen dump". This means that each line is printed from the screen one at a time, regardless if any characters are there or not. This is the ONLY time you are unable to continue working while the system is printing (unless you deliberately press CONTROL and PRINT to screen dump any file).

BOLD

Ralph was squinting at the screen of his Viks Vapo II, trying to remember where the bold text started and stopped. He finally saw an "H >" in front of the word *"Home"*. "No wonder I couldn't find this thing, it looks like part of my text. Oh well, I hope this comes out okay... "

This is BOLD print. The BOLD key is a toggle for on-screen and printed bolded type. The BOLD and ITALIC keys work only in the word processor. If you have already typed something and you want to go back and bold certain words or phrases, simply position the cursor in front of the word to be bolded. Then press the BOLD key, and everything from the cursor *ON* will be in BOLD. Then move the cursor to the last character you want bold, and press the BOLD key again. This will un-bold the rest of the text (except where BOLD has been previously used. You will notice that if you bold a word, then go *back*to bold a word before it, as you toggle the BOLD key, the first word will not change. You must position the cursor directly on the first character of the pre-bolded word to toggle it back to normal type). All Epson dot-matrix printers with GRAPHTRAX PLUS will print both BOLD and ITALIC exactly as you see it on the screen. BOLD may be used in conjunction with ITALIC for a ***"BOLD ITALIC"*** type.

ITALIC

ITALIC works exactly the same way as the BOLD key. If you use both keys at once, this is the effect you will get: ***BOLD ITALICS.***

SIZE

"Alright, let's see this double spaced so we can tell how many pages it will be when we print. Since we're going to print this double spaced, I want to make sure the length is right." Elizabeth was leaning over Jennifer's shoulder as she reformatted her document to on-screen double spacing.

The SIZE key, (all versions after 1.14), will alter the *on-screen line spacing* in the text editor. At the bottom of the editing screen, you will see "LS=1". This means that your on-screen line spacing is single spaced. SIZE acts also as a toggle. Each time you press SIZE, it increases the line spacing from "1" to "2" to "3", then back to "1". If you store your document with the line spacing as more than single, it will *print as it is stored.* For instance, under the printing menu, you also have the option for multiple line spacing. If you have stored a document with on-screen line spacing of two, and you chose double spaced print through the print menu, you will get QUADRUPLE SPACING! So if your document is already spaced correctly, do not ask for multiple line spacing when printing it. In future versions of VALDOCS, the SIZE key will also allow you to increase the size of

your type on-screen. If you look at the names of the graphs when they are printed, it will give you a good idea of what you might expect a large type to look like.

STYLE

"This is great, Dad! I can underline in all caps at the same time!" "I'm proud of you, son. You sure have this computer all figured out!" Mr. Denton clapped his son on the shoulder.

Currently, the STYLE key has two functions. Eventually it will have more. Right now, the STYLE key, when pressed, will toggle on UNDERLINING. Underlining works exactly like the BOLD and ITALIC functions. You will see the underlining throughout the text where it is in use. The STYLE key used with the CONTROL key, will switch all of the alphabetic keys to capital letters, leaving the numeric and symbolic keys as they are. Toggling the STYLE key on and off affects only the keys you type after the change. Eventually, the STYLE key will allow you to type in several different fonts.

HARDWARE INTERFACING

"I've got a new project for you son: Milt from Milt's Cleaners needs a computer programmer to tailor an accounting package for them. I thought of my number one son!" Mr. Denton said. Larry put down his programming manual and looked up at his father. "Come on! You've always got some project you want me to do. Give me a break!" he complained. "It's your own doing," his father retorted. "If you weren't so good at programming, I wouldn't have even brought it up." Mr. Denton sat down next to his son. "I think you should consider making this a real business. You've got a great computer and some practical experience. Why don't you take advantage of it?" "Well, I had been thinking about it a bit." Larry pulled the disks out of the drives and shut his QX-10 off. "I just wasn't sure how you'd feel about it, since I'm so young and everything." Mr. Denton smiled and put his hand on his son's shoulder. "Look, son, your age is your advantage. I'll help you get started financially, but you have to do the real work." "Thanks, Dad. I think I could really do some exciting stuff!" Larry paused. "But if I'm going to make a business of this, I'll need more equipment." Mr. Denton rubbed his chin.

Larry opened a drawer and pulled out a ream of paper. "Look at this, dad." He handed the papers to his father. "This is just some of the stuff I'm working on. I'll need more space to keep all of the data files and stuff. That means a hard disk, and a modem for sure, and then I'll need a ..." "Okay, son, make a list. I'm going to support you on this project. We'll get whatever you need. Do you need all of these expansion pieces before you start writing the accounting package for Milt's Cleaners?" Larry grinned. "Nah... but I'll need the stuff soon enough."

Larry and his father left the house bright and early Saturday morning in search of hardware additions for their QX-10. Their first stop was the local computer store, The QX-Connection.

"Good morning Larry, Mr. Denton." Millie Morgan who owned the QX-Connection greeted the pair as they entered the store. "Are you here for more diskettes and paper?" she asked.

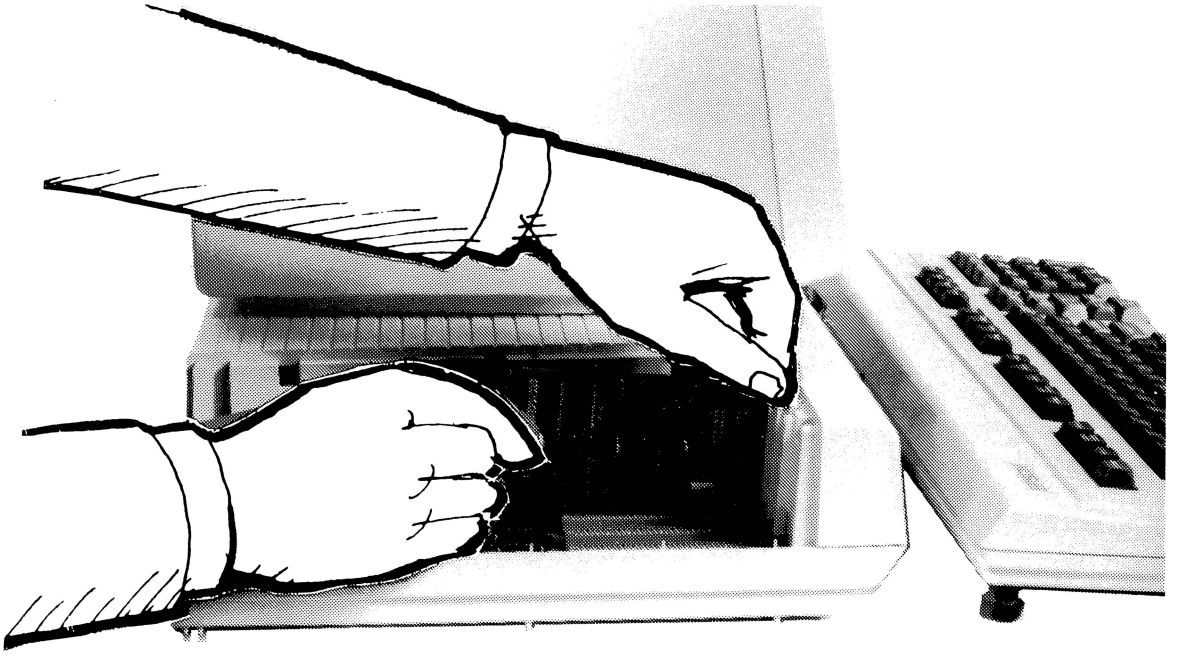
"Well Millie, I think I have a slightly taller order for you today." Mr. Denton smiled and pulled a list from his pants pocket. Larry sat down at a table with a QX-10 system.

"Okay Millie," Mr. Denton continued, "I hope you can help us. We want the most complete QX-10 system possible. My son is going to be writing software programs, so I figure he needs the proper set-up in order to do things right." Millie nodded. "So, we'll need a 10-meg Comrex Hard disk system, the Comrex internal modem, cables...are you getting all this down?" Millie shook her head up and down as she filled out the order form. Larry's father read on: "We also need the Comrex CR1-C daisy wheel printer and a tractor, ten boxes of disks and three boxes of fan-fold paper." Larry made a coughing noise and motioned to the computer table, in front of him. "And a computer table," Mr. Denton finished. He sat down next to Larry. "Son, you are going to have to write some pretty amazing programs in order to stay a member of this family. I am now broke!" Larry

laughed. "Sure, Dad. I'll write programs, but you aren't broke. Remember, I wrote your accounting system for you. I know how much money you make." Larry sat back smiling. "Well," Mr. Denton poked a finger in his son's shoulder. "Don't forget I earn it. Now, you do the same." "I will, Dad! I'm just glad we didn't have to run all over town for this stuff! We can go straight home and get to work!" Larry beamed.

An hour later, Larry's QX-10 system sat on top of his bed with the expansion slot cover removed. His father was putting the last screw into the computer table he had assembled. Larry was reading the instructions for installing the modem. "This should be a snap," he said. "As soon as you're finished, I'll put the system on the table."

Larry examined the modem card. It was a simple looking device. The instructions explained the installation procedure in detail. Larry pushed the modem into the third expansion slot on the motherboard of the QX-10. "That was easy!" Larry looked at his dad unwrapping one of the other boxes. "Now, let's take a look at this thing." Mr. Denton opened the box that contained the hard disk. Inside was a small cabinet that contained the hard disk drive, a disk controller on an expansion card, and a diskette with the hard disk upgrade software. Larry opened the instruction sheet and started reading. He inserted the disk drive controller card into the first expansion slot in the QX-10. "Hey Dad! These instructions say that VALDOCS 1.18 will automatically look for a hard disk. This upgrade diskette isn't needed!" Larry tossed the upgrade diskette back into the packing box.



Then he plugged the hard disk into the controller card. "Boy, this is great!" Larry thought.

Most hardware additions to the QX-10 plug into either the external RS232-C serial port or one of the internal expansion slots. The instructions for each add-on item should be read in detail before any attempt is made to interface the new piece of hardware.

The COMREX internal modem uses the same modular jack cord as most telephones. After installing the modem card (just snap it into one of the expansion slots - a *jack*-rabbit could do it in ten minutes!), plug the end of the phone cord into the jack on the modem. The communications protocals are the same as those for the Hayes Smartmodem 300. If you are using communications software other than the MAIL feature in VALDOCS, you will need to configure the software as if it were a HAYES SMARTMODEM, even though it is actually a Comrex. (e.g., MODEM7 or Link software programs. The programs will ask you what kind of modem you are using, and you simply respond with Hayes 300.)

There are several hard disk systems currently available for the QX-10, including the Comrex Comfiler, Cameo, the QCS system, and a variety of Winchester and removable cartridge hard drives made by Bi-Tech, Inc.. Each one comes with a hard disk controller that plugs into the QX-10 and the software required to make it work. Follow the instructions carefully when installing any external disk drive system. Always check with your dealer if you are unsure about how to proceed.

Although Epson has not released a light pen for the QX-10, there are several available (Symtec) that will plug into the designated plug on the system. There is also a bar-code reader (Bi-Tech), several plotters (Comrex, Amdek), and other assorted hardware devices either in development or currently available. Check with your dealer for more information.

COMMUNICATIONS

One of the most difficult skills to master is good, comprehensive communication. It's true that if one person tells someone a story, then that person repeats it to another, after four or five people, the story is almost unrecognizable to the person who originally told it. With computers, communication has not only increased in speed but in accuracy as well. Now, through the use of a small device called a telephone "MODEM", you can dial other computer systems and send files, receive messages, or just chat about the weather! Elizabeth can have a QX-10 and Larry a Viks Vapo II, but they can still "talk" to each other. This concept will dramatically affect the way we live.

There are hundreds of "Bulletin Board Systems" (BBS's) that people with computers and modems have initiated. A BBS is a single computer that others use as a data base for exchanging information (much like a public library). Most of these people share common interests or use the same brand of computer, and are looking for others around the city/state/country/world to share information with. Often, these BBS's are referred to as "RCPM's" or Remote CP/M Systems, or Public Access Message Systems (P.A.M.S.) There are literally thousands of "public domain" software programs available through BBS's, public domain meaning "free". Everything from games to high-level language programs. (See Appendix D and E)

There are many different types of modems; everything from "acoustic couplers" to modem "cards". The older models, called acoustic couplers, require the operator to first dial the phone number, wait for the line to be answered, listen for the other computer to send out a connect tone, and then place the phone handset into the modem receptacle. By today's standards, this is not very efficient. Most modems are now auto-answer/auto-dial. This means they can answer the phone automatically as well as dial another computer once a phone number has been issued via the terminal.

Most telecommunications are transmitted through the serial ports (usually RS-232C) of micro-computers. The information in the computer is broken apart and sent through the telephone lines to the other computer. That system assembles the data and either displays it on the screen or sends it to a printer or disk drive. There are different rates of speed used when sending and receiving information. This rate of speed is referred to as "bits per second", or "baud". The most common baud rates are 300 and 1200.

The VALDOCS system currently supports two kinds of modems: The Hayes Smartmodem and the Comrex Communicator 300 modem. The Comrex is limited to 300 baud operation, while the Hayes 1200 allows baud rates up to and including 1200 to be used. Both systems may operate either full or half duplex. Although 1200 baud is faster, many people feel 300 baud is more reliable.

There is more to using a modem than just unwrapping it and plugging it in. You must have the software that tells the system (and the user) how to telecommunicate. There are many types of communications software packages. They range in price from free, to hundreds of dollars. Unlike many other software packages, the cost of the software

is not indicative of the quality of the product. There is an excellent "public domain" software package called "MODEM", which is used by most eight-bit computers. It has become the standard for CP/M users because of it's flexibility and reliability. In fact, the communications protocals developed by MODEM's author, Ward Christensen, have been adapted by developers of other communications packages. Imitation is still the highest form of flattery. There is a version of the modem software configured for the QX-10. Dubbed "Modem7" (modified by Jim Mills and Mark Zeiger -see Appendix D), this program will allow the QX-10 to talk to many other systems at speeds of up to 1200 baud. The Modem7 package should be available free through the various QX-10 users groups, and through your Epson dealer.

"Well, Dad. Let's try out this modem," Larry said as he switched on the QX-10. "Who do you want to call, son?" Larry pulled a sheet of paper from his desk drawer. "Find somebody on this list," he said handing the paper to his dad. Mr. Denton scanned the paper which included a list of public access bulletin board computers (see Appendix D). "Here we are. Let's call the 'QX Information Network'." Larry loaded the Modem7 program and waited for the command prompt. Then he typed a *"T"* meaning "terminal" mode. "What's the number, Dad?" Mr. Denton read off the number and Larry typed it into the computer. "This should be fun!" Larry commented as the modem dialed the number.

After two rings, the phone was answered and a tone sounded. The modem responded with it's own tone and a message appeared on the screen: "CONNECT". "Alright! We're in!" Larry exclaimed. "Okay, now what?" Mr. Denton asked. They watched the screen. After a moment, a message appeared that read "What is your name?". Larry grinned and typed in *"Larry"*. The system asked him where he lived and why he was calling. Then the information was stored on the remote computer.

"How the dickens do you know what to do?" Larry's dad questioned as he watched his son at work. Larry was busy typing. "Gee, dad. I don't have a clue. I'm just wingin' it. I think I'm logged into his computer as a remote terminal now." The screen displayed the A> symbol. "Try getting a directory listing," Mr. Denton advised. Larry typed in *"DIR"* and a directory of disk A on the remote system appeared. One of the files was labeled "BBS.DOC". "I guess that program is the information about how to use this thing," young Denton commented. He typed *"type BBS.DOC"* and pressed the return key. Line after line of information started filling the screen. "Don't blow it son! Turn the printer on and keep this stuff!" Larry pushed the rocker switch to the "ON" position and pushed CNTRL P on his keyboard. The printer started to copy what was being displayed on the video screen. "We could be here all night!" Larry said watching the screen. "I wonder what kind of affect this stuff will have on business?" Mr. Denton wondered.

Using micro-computers for communications in the business world is a new and not fully tapped market. Using your computer and modem to talk to another system in one's office is a great way to increase productivity!

COMMUNICATIONS AT WORK: DynaType, GLENDALE, CA.

Paul Smith and Charlie Hodge* of DynaType have been using computers in their business for several years. Their application is a unique one (but not for long!) in that they use microcomputers for typsetting. Typesetting is the process of taking an author's written ideas and transferring them into a typesetting machine, which then prepares the text for the printer. Usually, the author's work must be typed into the typesetting machine by

*(These people are real. Any resemblance to ficticious characters is unintentional - but funny.)

hand. This is time consuming, expensive, and can create "high-anxiety". Just ask Charlie! In addition, the person doing the re-typing is liable to make errors of his/her own, increasing editing and production time.

Using a computer to send prepared text files to a typsetting machine can eliminate these problems. Any errors in the text will be the author's own, because there is no retyping. A 250 page book can take up to two months to typeset the conventional way. Using computers, Paul and Charlie can do it a few days.

They started out with an Apple II, later adding a Kaypro II. Paul wrote a code-stripping program that modifies writer's text files. The modified program is then sent directly into the typesetting machine. Although DynaType could receive files from many computers through telecommunications, they could only take diskettes from clients who had used an Apple II or Kaypro II.

In July of 1983, Paul and Charlie added an Epson QX-10 to their operation. They can now effectively transfer data to the typesetting machine without being limited to receiving diskettes in only Epson, Apple, and Kaypro formats. When files are being sent from a remote QX-10 to DynaType's QX-10 via the MAIL function, both sender and receiver are free to work on other projects. This book was sent to the typesetting machine via a QX-10.

When the TP/M II utilities disk is released, DynaType will be able to read and transfer files from many different disk formats. The client will give Paul (or Charlie) his disk (e.g., NEC format), and say "So long!". Then Charlie (or Paul) can load the NEC formatted disk into the B drive of the QX-10, load the utilities disk into the A drive, and read the information directly into the QX-10. It can then be sent to the typesetting machine.

This is just one example of computer-increased business efficiency. Jobflow, accuracy, and cost-effectiveness are increased. Production time, cost, and waste are decreased.

PRINTERS

The QX-10 is designed to be used with either a dot matrix or letter quality printer. Although many different printers will interface with the system, not all will operate at maximum efficiency or take advantage of the many VALDOCS and QX features.

Specifically, Epson supports the following printers:

EPSON MX—80, MX—80FT, FX—80, MX—100, FX—100, RX—80, RX—80FT, COMREX CR I—C, Brother HR—1, COMREX CR II, Brother HR—15.

Because of the multiple font and graphics capabilities, the QX-10 really shines when mated to a dot-matrix printer. However, only the Epson printers, or printers using the same control codes will print graphics characters correctly. Other dot matrix printers may not be able to receive user-defined characters or custom fonts.

The newest entry into the Epson line of printers is the FX- series. Available in both 11" and 15" carraige sizes, the FX-printers were designed alongside the QX-10.

The FX- series of printers was conceived to utilize many of the custom features and benefits of the QX-10. The FX- printers are not limited to the program-selectable ASCII and international character sets like so many of their competitors. Any character or graphic symbol that can be generated within a 9x11 matrix can be programmed into the FX- printers. They will store up to 256 custom characters in addition to the resident fonts. If you don't use custom symbols, then the printer RAM functions as a 2K data buffer.

The graphics capabilities of the FX- series are very flexible. You may use up to seven different dot-addressable graphic modes on the same print line. This means you can change fonts (bold, compressed, double-width, etc.) up to 7 times per line. These graphic modes are program-selectable. This feature will become very useful when the QX-10 utilizes the SIZE and STYLE keys.

The FX- series print at 160 characters per second. There is a certain amount of noise associated with dot matrix printers, so the FX- printers also have a "Quiet Mode" that cuts printing speed in half (80CPS). This should be perfect for those of you who like to print documents at 3 AM in apartment units!

Also new to the Epson line of printers is the RX-80. This dot-matrix printer is a smaller cousin to the FX- series. Currently only available in a 11" version, the RX-80 prints at 100 CPS. It is a tractor-only printer, so it requires fan-fold paper. With the introduction of "Lazer-Cut" paper, this may not be a drawback. Lazer cut has a clear edge, so when the tractor holes are separated, it looks very clean. In late fall, Epson will introduce a friction/tractor version of the RX Printer dubbed the RX-80FT. One additional feature found on the RX-80 printer is the ability to print HX-20 graphics characters. This makes the RX-80 an ideal mate for the portable HX-20. The RX-80 will not, however accept user defined characters or keep new character sets in it's memory.

The QX-10 also supports certain letter quality printers. VALDOCS requires that the printer interface be Centronics parallel. The SETUP function in VALDOCS allows the

user to define which printer is being used with the system. Currently, the COMREX line of letter quality printers are the only ones that have specific printer drivers in SETUP.

VALDOCS (version 1.16/1.18) will support a variety of other letter quality printers as well. These printers can be installed as "Other" in the SETUP menu. Printers known to work with the QX-10 include the following: DIABLO SERIES (parallel), NEC SPIN-WRITERS (parallel), BROTHER'S DYNAX DX15 (Parallel), and TEC PRO-WRITER and PRINTMASTER (parallel).

THINGS YOUR MANUAL NEVER TOLD YOU...

There are plenty of questions that every QX—10 owner has that are not answered in the manuals provided with the system. Here are many of the most common unexpected situations and their answers as provided to us through Epson, Rising Star, Tech Support, our own experiences, and our fellow users.

The most important thing to do when you first get your QX—10, is to let it remain powered on for 24 HOURS! The manual says 12 hours, but it should be 24. This insures that the battery (CMOS RAM) is charged to full capacity. If the battery is only charged, say, 65%, it will not charge more than that again. You could lose important data and/or features of the system, e.g., the clock, your index, the schedular, etc..

The original data disk that comes with the system is not just another blank disk! The TP/M system bootload instructions are it. You could actually put the data disk in drive A and boot the system with it. You would see a message about TP/M, then an A would appear. This is just the shell of TP/M, as released with the system. If you type "D" for a directory listing, you will see some system files and some numeric files. The numeric files are the sample VALDOCS data files and graphs there for you to learn on when you first get your system.

If you suspect a software problem because of error messages, (e.g. bad file name: , cannot locate file), try these two possible solutions before calling your dealer: a) Check the dip switches in the back of the machine. Number one should be in the down position. The rest should be up. If they are correct, then b) try resetting the system using your data disk in drive A. Once you have the A>, type "d" for a directory. If a listing appears, you have NOT lost your files. You should be able to retrieve them as non-indexed files, call them back into the editor through CONTROL Q, and resave them under their VALDOCS names. If you do not get a listing, your disk may be destroyed. You do make back-ups, don't you?

NOTE: At this writing, patches for most of the problems in version 1.14 have been installed in updates, alleviating many of the problem situations. We have included the 1.14 "bugs" and their solutions for those of you who do not yet have a newer version. As each version of VALDOCS is written, it improves and expands on the previous one. Remember, there will never be a "Final Version".

There is no set order in which these situations were compiled, since many of them have to do with specific procedures or rare occasions. However, the version number of VALDOCS pertaining to each instance has been given for your reference.

1.14

When in the editor, B 's appear along the left margin of your screen and start to scroll upward. This is the ominous "zapple monitor mode" taking over. There are eight

bugs in version 1.14 that will put the system into zapple. They are internal and controlled through software, and have been fixed in all newer versions. What you are actually seeing, is the system giving itself looping commands and executing them. Your only recourse for this situation is to reset your system. If you have pressed the MENU key any time prior to this occurance, you will return to that point in your text when the system is finished rebooting.

1.14

If you are typing in the editor and the characters start to write themselves across the screen, bypassing the margin and continuing on into the thousands, you have again fallen into zapple. You must reset.

1.14

If you are typing and the screen goes blank, and the time at the bottom starts flashing, you are in (guess where!!) zapple. Reset.

1.14

By now you have figured out that if strange things start happening on the screen, you are probably in the zapple monitor mode, and the only thing you can do is to... you got it! Reset the system.

1.14

The zapple monitor mode is the heart of the TP/M operating system. There is currently no documentation on zapple, but with the new releases, you should never have to worry about it again. Just know that it is an extremely simple, very powerful, and very dangerous programming tool. It's primary use is for system control and program design. If you ever have an opportunity to lose information because of zapple, the next section is especially important:

When creating a document, one should follow these proceedures to insure no data is lost:

THIS APPLIES TO ALL VALDOCS VERSIONS.

EVERY FEW PAGES, PRESS THE "MENU" KEY AT A CONVENIENT PLACE IN YOUR TEXT. THIS WILL CREATE A "RESTART" FILE OF YOUR DOCUMENT FOR THE SYSTEM TO REFER TO SHOULD SOMETHING HAPPEN. ONCE YOU HAVE PRESSED "MENU", YOU WILL SEE A MESSAGE THAT SAYS "PROTECTING CURRENT WORK...PLEASE WAIT". THIS MEANS YOUR DOCUMENT IS BEING WRITTEN TO DISK! AFTER YOU HAVE ENTERED THE "MENU" FUNCTION, PRESS "UNDO" TO RETURN TO EXACTLY WHERE YOU LEFT OFF. Now, if the system accidentally gets shut off, or if you need to reset for any reason, you will come back to the last point where you pressed "MENU".

1.14

We have experienced both successful and unsuccessful system resets. If you do not use the "MENU/UNDO" checkpoint storing proceedure, you will just have to take your chances in regard to losing your data. Zapple is more likely to occur when you are in the Expert mode. Until the newer versions of VALDOCS came out we were told never to go into the expert mode. There is still no documentation on the reasoning for this, but through our conversations with our local Technical Support Manager at the Epson distributor, we were introduced to zapple. If you are still using version 1.14 or older, avoid using Expert mode. There is limited change between Advanced and Expert. The main differences being that you may run a specific program through the MENU key if you are in Expert, and that you have the CTRL \ and DEBUG options in SETUP under Experience Level.

1.14

When you change data disks, or before you turn the system off, it is a good idea to press the MENU key prior to removing the diskette. This will close the data disk directory properly so that the system can find it again. If you do not do this, there is a chance you could lose the entire directory. A message may appear on the screen the next time you try to use that disk that reads: NO FILES HAVE BEEN STORED ON THIS DISK, OR THEY HAVE ALL BEEN DELETED. This does NOT mean you have lost your entire disk, only the directions for the system to locate the directory. You then have to use the "Recover Backup" procedure under the disk segment thru the COPYDISK function to reset the instructions and retrieve your directory. You must be an Expert to do this. (CAUTION: The proceedures for recovering a lost directory in versions 1.16G/1.18 are different! Read ahead for these instructions.) It is a good idea to check with your dealer or distributor for more intructions and variations on using the Recover Backup procedure.

1.14

Under the HELP key menu in the editor, you will notice an option called "Quirks", with a warning that it requires computer knowledge. You may only access quirks through Advanced or Expert modes. Quirks, or CNTRL Q, allows you to store and retrieve "Non-indexed Files" (different in 1.18). Storing a document in this manner allows faster storage and retrieval times in the editor, plus gives the document a CP/M style file name (e.g. "Bookfil" or, "Book.txt"). This can be very convenient when using other programs with your files such as a spelling checker. Although you can store additional page formats through the normal STORE routine, it is much faster and easier to use the non-indexed file method. By changing your margins and storing a blank editing screen, you may retrieve that additional format and insert it into your document at any time. However, you must also store your normal format the same way. For example:

To store multiple formats for screenwriting, use the following outline (this procedure is faster when using version 1.18, read ahead): For description, set margins to L10 and R70, then press CTRL Q. Store this blank page as a non-indexed file under the name of F1. For dialogue, set margins to L15 and R65, then press CTRL Q. Store this blank page as F2. Now, press CTRL Q again, and retrieve F1 to start typing the description. When you are ready to start the dialogue, press CTRL Q and retrieve F2. The new format will start at the point where your cursor is, and will continue until you call in another format.

You can store as many non-indexed files as you like. All of the format changes such as top of page margins, bold, italic, page breaks, any prewritten text, etc., will be stored with it.

1.14

Once you are in Expert, you will notice two additional options under the Experience Level choice in SETUP. They are CTRL \ and DEBUG. These should never be used unless you are a programmer, technician, or running diagnostics. if you enable the CTRL \option, then every time you press CONTROL and the \ key, you will exit to TP/M. If you enable the DEBUG option, you will visibly notice it only when the system boots up. There will be a message that says: DEBUG TRAP ENABLED. This is an error trapping routine for TP/M.

1.14

To attach or chain files together, the following procedure is used: Bring the first file you will use into the editor's memory. Once you see it on the screen, position the cursor to where you want the chained file to be inserted. Press the RETRIEVE key. Call up the file you wish to attach and press return. This will pull the next file into memory, and insert it at the cursor. Continue this proceedure until all files you wish to chain are in place. Remember, when storing the new chained file, to give it a new name.

1.14

When storing blocks of text to be reinserted elsewhere, the system will only store in the DEFAULT FORMAT settings. This means that if you are using a special format at the time you wish to store a block, you must REFORMAT the block after you reinsert it at the desired location.

1.14

VALDOCS stores each file in four ways: There is a BUFFER FILE, a BLOCK FILE, which is 256 bytes in size (until used for storing blocks of text; it then becomes the size of the file), there is the actual file you are creating or using, then there is the UNDO FILE.

The BUFFER FILE allows you to type faster than the screen can display characters. If you are fast enough, you can actually watch the screen catch up with your typing. This is the BUFFER FILE emptying onto the screen. The BLOCK FILE is preset to 256 bytes in length, and is used to house the blocks of text you want to move, while they are being moved. If the block is larger than 256 bytes (approximately 40 words), the BLOCK FILE will increase its size to what is needed. The UNDO FILE is a mirror image of the file you are working on. It allows you to UN-delete a character, word, line, and so on. When you are working on a VALDOCS text file, there is no file size limitation. Length, however, becomes a factor because of the four copies of each file. early versions of VALDOCS will become noticeably slower as file size increases.

1.14

When you delete a file, you are not actually erasing the text from the disk. The only thing the system does is mark the file name for deletion and remove the name from the index. If you delete a file accidentally, you may recover it through the SINGLE FILE COPY option under the COPYDISK key menu. There you will see an option to <U>ndelete a file.

1.14

The original VALDOCS user's manual incorrectly documents the handling of "Widows" in the CTRL L function. A widow is the first line of a paragraph that is left on the previous page. The book says that moving widows is a global (throughout text) function once you chose to use it. Just the opposite is true. It is NOT global. Each widow in the text must be moved individually. You can ONLY MOVE TEXT FORWARD to the next page. VALDOCS WILL NOT HANDLE "ORPHANS".

1.14

Pagination is not supported with VALDOCS version 1.XX, nor does it support headers or footers. Version 2.XX will have pagination including an ON/OFF option and selectable page numbering.

1.14

Early releases of VALDOCS tend to slow the system down as the data disk becomes full. This is directly related to how the system handles directories. By using the "Clean Disk Directory" function under COPYDISK, you can eliminate file space taken up by deleted files. Running the directory cleaner will physically remove the pointers to the logically deleted fields. This will give you more room to work.

1.14

The address book must be defined on each new diskette. You are given the option of up to 1,130 name cards per blank diskette. The default, if no number is specified, is 50. Version 1.14 will not allow more names to be added once you have reached the pre-determined limit. Version 1.18 allows you to add names as you need to.

1.16

All of the accidental "holes" in version 1.14 that let you slip unexpectedly into the zapple monitor mode have been fixed in the "patch" version called 1.16G. The major differences are most noticed in the SETUP menu. You may now select the modem you are using, and declare the baud rate. There are more printer options to assign, which narrows down the definition of exactly what your printer can do. For example: when using a letter-quality printer, you may now tell the system how fast it is (CPS). It is recommended that you exaggerate the speed by about five CPS to allow for maximum data transfer time. By telling the system your printer is 21 CPS when it actually prints at 16 CPS, there is

always data being transferred to the print buffer, and prevents the printer from stopping and waiting for the buffer to fill before it continues printing.

1.16G

The PRINT menu has two more options. "Roll up to tear bar" will tell the printer to forward the paper so that the perforation is positioned where the tear bar is. The number of spaces to forward is designated when you chose your printer through the SETUP menu. "Lines to skip at top" lets you tell the printer that you have letterhead paper, and that it should forward a given amount of lines before printing.

1.16G

The SIZE key has been enabled for on-screen line spacing. You will see "LS=1" at the bottom of the editing screen. This designates the line spacing. With the SIZE key, you can toggle single, double, or triple spacing as you type. If you double space on screen, the document will print double spaced. If you print a double spaced document, then chose "line spacing" and in the print menu and designate two, it will print quadruple spaced. You can still type single spaced and use the line spacing option in the print menu.

1.16G

The STYLE key is also taken advantage of. You can now use the STYLE key as a toggle for underlining. It works the same way as the BOLD and ITALIC keys, taking commands from the cursor forward. CONTROL and STYLE will still change the alphabetic keyboard to all caps.

1.16G

CONTROL and STOP will blank the screen. If you want to keep your work from being seen, press CONTROL/STOP. Any key will bring the screen back. The system automatically shuts the screen off after 20 minutes to prevent damage to the video monitor. Any key brings it back to the original position.

1.16G

Under SETUP you will notice some major changes. There is now a modem menu, allowing the choices of the HAYES 1200 SMARTMODEM or the COMREX internal modem. Since these are the only two protocals that work with the QX-10, any modem you buy should be HAYES compatible. If you are using anything besides the COMREX COMMUNICATOR, install it as a 1200. If you are not sure what protocal your modem is, check with your dealer, or call the manufacturer.

1.16G

Under SETUP, you will no longer see the INPUT/OUTPUT ASSIGNMENTS option unless you are in the Expert mode. The DEBUG option has been eliminated from SETUP.

1.16G

Under the Printer choices in SETUP, you will see many more printers to chose from, including the RX—80. There are more settings for letter-quality printers to designate. You may now tell the system whether or not there is a carraige return after a line feed (explained in your printer manual), and if your printer has a permanent buffer, you can tell the system how many cps it prints. For instance, if you are using the Comrex CRII, which prints at 12 cps, you should tell the system that it prints at 16 cps. This will keep the data flowing faster into the buffer, so your printer won't stop and wait for it to fill. If your printer works at 35 cps, tell the system it prints at 41 cps. The system will then transmit data faster than the printer can print.

1.16G

When you first enter the editor in 1.16G, you will notice a small dot in the bottom right corner of your screen. This is a print queue monitor. When there is something printing or waiting to print, the dot will turn into a 1 or 2, depending on how many different documents are waiting to print. As each document prints, the number will decrease. If you have three copies of the same document, you will see a 1. If you have three different documents waiting, you will see a 3. The system will only back up three documents at a time. If you try to back up more, you will see the following message: "SPOOLER FULL, UNDO TO CONTINUE OR WAIT"

1.16G

To recover a lost disk directory, you must be in the Expert mode. Go into the COPYDISK function and chose the Disk Management option. You will see the choices to M ake a New Directory or to <R> ecover Old Directory. Watch the screen. There are some new messages and decisions you will need to make. You will have the option of using the old directory even after the new one has been created. Use the HELP menus if you need to, but the instructions are pretty simple. The system has warning messages whenever you are in danger of destroying something by choosing a specific option.

1.18

The major changes occur in the word processor. Under the CONTROL Q option in the Expert mode, you will notice three additional choices: "Quick Display", "Cursor Lock in Center", and "Indexer Active". Once you have become comfortable with the word processor, you may want to speed things up a bit. These options allow just that.

The quick display, when toggled on, will put the editor into a "character mode" instead of the normal "bit-map" mode. This is immediately obvious because the cursor

page break lines disappear. When you use the SHIFT and NEXT or PRIOR PAGE keys, the screen scrolls a full 24 lines, instead of the normal 11. If you enable the cursor lock toggle, the cursor will be released from the center line, and will move anywhere on the screen, like many other word processors. The indexer active toggle lets you store and retrieve regular files as non-indexed files, without the need to use the CONTROL Q function. For example, if you toggle the index off, pressing the INDEX key will display a listing of all files in a CP/M fashion, with a notice of how much room you have left on your data disk. You cannot access these files. This is only a listing of what is on the data disk. If you hit the RETRIEVE key, you will see this message: PLEASE TYPE THE NAME OF THE FILE YOU WISH ME TO INSERT AT THE CURSOR _____. You may then retrieve any file and attach it to the present one. By pressing the STORE key, you will see the following message: PLEASE TYPE THE NAME YOU WISH TO STORE THIS DOCUMENT AS _____. Retrieval and storage time has increased considerably. Now, when using multiple formats (e.g. screenwriting) there is no need to use the Control Q feature. Simply use the STORE and RETRIEVE functions with the indexer turned off, and the system will function in the same manner as when using the Control Q function—but in a more direct manner.

1.18

When using SETUP, you will see a new option, "Terminal Configuration". You now have the ability to tell the system which terminal the QX-10 should emulate. To run ANY CP/M program, you must run a program usually called INSTALL.COM (unless the manufacturer has predefined the terminal characteristics for a particular computer). The install program will ask you which terminal you have. If you try to run a program without installing it first, you may see strange characters on the screen (such as a number where a letter should be), or it may not run at all. Now, the QX-10 is completely configured as a Televideo 920 terminal, AND, as it's own terminal, labeled "RSI STANDARD", similar to an ADM-3 terminal. Under the Terminal Configuration are the following choices: "Menu Options", which let you tell the system to write in bit-map (graphics) or character (ASCII), "24 or 25 Line Display", pertaining to the editing screen, "Repeat Rate", which lets you adjust the speed that the cursor moves when repeating, and "Character Mode Driver", which lets you assign the terminal configuration.

1.18

In the PRINT option menu, you are now only allowed to make up to 99 copies at a time, instead of the previous 255. The reason for this is to allow room for up to three files to be backed up waiting to print, instead of only two.

1.18

The proceedures for Disk Management are no different than for version 1.16G. All HELP menus, proceedures, and warning menus remain the same throughout.

1.18

When using the Quick Display option in the word processor, the STOP key will not work if you try to stop something from printing. You must first toggle Quick Display off, then press STOP to halt printing.

1.18

Once a document has begun printing, you may not change data disks until it is finished or stopped. You will see a message that says: SPOOLER IS STILL USING DISK. B:(filename.ext) PRESS ANY KEY TO CONTINUE. You may then go back to editing or any other function until the print spooler is empty and all has printed.

1.18

If you have stored only non-indexed files and you press the RETRIEVE, INDEX, or PRINT keys, you will see the following message: NO FILES HAVE BEEN STORED ON THIS DISK, OR THEY HAVE ALL BEEN DELETED. This does not mean you have lost anything, it means that you must store or retrieve files through the CTRL/Q options.

1.18

If you have stored only non-indexed files on your data disk, you must re-store each one as an *indexed VALDOCS* file in order to print.

1.18

Version 1.18 will NOT read foriegn disk formats without the use of a new utility found under the MENU OF APPLICATIONS on the LEFT drive. By running this utility, you will be able to select from a list of 5.25" disk formats and TP/M will then recognize and read the disk. (NOTE: Although this utility is scheduled for release in version 1.18, the final marketing decision has not been made prior to this printing.)

1.18

The software for version 1.18 will not support printing the graphics keyboard characters. The only way to get them on paper is by using CNTRL/PRINT and performing a screen dump. If you wish to print graphics characters while using MBASIC, then you will need to use the CHR$(xx) format. Consult your BASIC manual for further information.

1.18

To delete a non-indexed file, you must first exit to TP/M via the MENU key. Once you have the A>, type:

A> era filename.ext

"Era" meaning "erase". If your file is on the B drive, type:

A b:era filename.ext

1.18

You can trick the system into storing a file on a different data disk without going through the normal Single File Copy routine. Bring the document into the editing screen. Remove the data disk. DO NOT USE THE CTRL/M FUNCTION TO CHANGE DATA DISKS, just remove the disk quietly without telling the system! Now insert the other data disk and press the STORE key. The new disk will be re-logged and you should then name the new file. NOTE: This process is not 100% reliable - so be careful!

1.18

To delete a forced page break, mark the last character of the end of the page as a block, then go to the first character of the beginning of the next page and mark the end of the block. From here, simply delete that block.

1.18

To total #'s separatly, put totals in memory then insert where needed.

1.18

When calculating inside text and trying to add separate columns (e.g. 24),

```
  32
  33
--
  26
   8
  10
--
```

you must add each column individually and reserve the total in the calculator's memory. Then use the <I>sert into text option to insert the total where you want it. The calculator adds up all numbers in the document if instructed to to total a column.

THE QX FUTURE

The QX-10 is obviously a versatile and well-balanced micro-computer. As with most innovative products, there are always new features and new items on the way. Imagine the QX-10 and it's many uses in a year or two. Just what is possible with this computer?

When Ralph's plane landed in Phoenix, it was nearly 97 degrees outside. There was a car waiting for him at the curb. He threw his bags in the back and climbed in. Larry was sitting in the back seat. "Good to see you again, Ralph! How was your flight?" "Good to see you, too, Larry! The flight was great. I can't wait to find out what all the mystery is. Do you know what Liz was talking about when she said she wanted to give us a permanent vacation out here?" "I have my suspicions, but I'm not gonna say anything. With my luck, I'll be 180 degrees off!" Ralph chuckled in agreement.

Once on the highway, Larry reached for something on the floor and set it in his lap. "I thought you'd get a kick out of this. I picked it up yesterday." "Hey, that's the new HX-5000!" Larry handed the computer to Ralph. "This is it," Larry exclaimed. "I really like it. But I'm warning you, once you play with it you'll be addicted! Check out the graphics this little bugger can do!" Larry pressed two keys and they sat back and looked on as the HX-5000 began it's preprogrammed demonstration. The time flew.

Larry stepped out of the car with HX-5000 in hand. Ralph thanked the driver and led the way into the building. Elizabeth Pilks had designed an international center for book and magazine publishing, computer typesetting, and software development. They had been invited for a grand tour of the new Pilks Systems Corporation building. Tempted with the promise of an unforgettable surprise, they had accepted gladly.

Once inside, they were both given badges and told to sign in. Larry was told that they did not allow portable computers, tape recorders, or cameras on the premises, and would he please leave his HX-5000 at the desk? They were then directed to a second floor office. The two guests walked down the hallway and waited for the elevator. The inside of the elevator was decorated with computer designed graphic pictures. "Hey, Ralph, how do you suppose they did this? It doesn't look like any printout I've ever seen!" "I don't know, but look at the precision of these lines! Let's be sure to ask Liz about it later."

When the doors opened, all thoughts of the elevator disappeared. They were standing in the doorway of a room roughly 100 by 70 feet. There were people and computers everywhere. The air was filled with the sound of printers, telephones, and people's voices.

"Ahhh... Larry and Ralph! I'm so glad you could make it!" Elizabeth appeared smiling, hand extended. "Liz!" Ralph said shaking her hand. "I can't believe my eyes! This place is *unreal!*" She smiled and greeted Larry. "Please forgive me for not meeting you at the airport, but as you can see, we're jammed right now. Was the car there on time?" "Yes, it was waiting for us when we arrived," Larry said. "Liz, I can't believe what you've done here! This place is amazing!" Ralph commented as they started their tour.

The group stopped in front of a system and Elizabeth picked up some printouts. The computer operator looked up from the screen of her QX-10 and smiled at the three onlookers. "This is Jennifer," Elizabeth said pointing to the operator. She's working with the new CAD/CAM system we've just installed." Ralph looked at the screen. A blue and yellow Formula One racing car was passing through a mountain pass on a twisting road. Ralph thought he was looking at an animated movie. Jennifer pushed some buttons and the colors on the screen started changing. "I can't believe all those colors!" Larry exclaimed. "Two hundred seventy-four in all!" Jennifer said proudly. Elizabeth grinned. "If you want a different type of car just ask and Jennifer will change it for you," she said. "Okay, how about a 126C Ferrari?" Ralph ventured. Jennifer pushed some buttons and the car changed into a bright red Ferrari. The rest of the screen remained the same. The two men just stared.

"Come on," Elizabeth said. "There is so much to see. Thank you, Jennifer." "My pleasure!" she said. The two men followed Elizabeth past more QX-10's with color screens and sophisticated graphic displays. They stopped by a series of metal boxes. Fans hummed from somewhere underneath. "This is our mass storage area. Our entire corporate network is tied into these hard disks." Larry shook his head in amazement. They continued walking.

"So, Ralph, how is your writing coming along?" Elizabeth asked. "Well," he replied, "I guess it's just fine. I feel a little foolish talking about writing at a time like this." Elizabeth laughed. "Nonsense!" She declared. "I want to hear all about it."

They turned a corner and stopped at a coffee dispenser. Elizabeth poured three cups of coffee into plastic cups. "I've just finished my latest book, 'Technology: The Fifth Generation'," Ralph explained. "And no kidding, I never thought I'd finish! Every time I thought I had it tied up, I had to go back and make more changes." Elizabeth handed Ralph

a cup. "Thank goodness I've got a computer system or I'd still be writing," he said taking a small sip. Larry grinned. "Yeah, and thank goodness you got rid of that stupid Viks Vapo II and got the QX-10." Elizabeth handed Larry a cup and said, "I don't think people had any idea how flexible the QX was going to be when Ralph got his first computer. Why, I didn't even know what an Epson was back then." The group moved on. "You make it sound like a decade ago, instead of only a year," Ralph protested. Larry agreed, "It almost seems like it, doesn't it? I remember the first book you tried to write with that Viks... whatever-it's-called." "Well, we all have to learn sometime. Okay, Liz, now what's this 'surprise' you've been promising us?" Ralph shifted his weight, wondering what it could be. "You'll have to be patient," Elizabeth answered slyly. "Come on, there's more."

They stopped at a closed door and Elizabeth inserted a plastic card into a slot in the wall. The door opened slowly. "You guys will love this!" Elizabeth said.

Inside the room there were two desks. Each one had a QX-10 and a printer sitting on top. There was a hard disk system and a shared access box with cables running into the two systems. "Have a seat, gentlemen."

"This is a three-dimensional two-player simulation game. You will be pilots and you may choose whatever various factors you like in setting up the game." Elizabeth looked over Larry's shoulder.

There were a series of questions to be answered. The computer wanted to know what kind of military equipment each player would be using. They started typing. Ralph chose the new Tigershark plane. Larry decided to be a Russian pilot flying a MIG-25. Ralph would take off from an aircraft carrier. Larry would already be in the air when the game started.

"Are you guys ready?" Elizabeth asked. The two players nodded. "Okay, push the 'Control' and 'Bold' keys at the same time, and the game will start."

Both players were startled by the smooth movement and easy control of their respective airplanes. Ralph was flying over the ocean. Larry was directing his plane along a stretch of beach. "I can't believe how fast this is!" Larry said as he turned his plane out over the ocean. "Well," Elizabeth explained, "we're using several RAM-Disks in each machine. This allows us to update the various screens at a very high speed."

Ralph noticed a little blip on his radar. "I think I have you!" he said to Larry. "Yeah, I got you too." As Ralph typed instructions into the keyboard, he couldn't stop shaking his head at the amazing quality of the color monitor. Because he was not paying attention, he nearly lost the game.

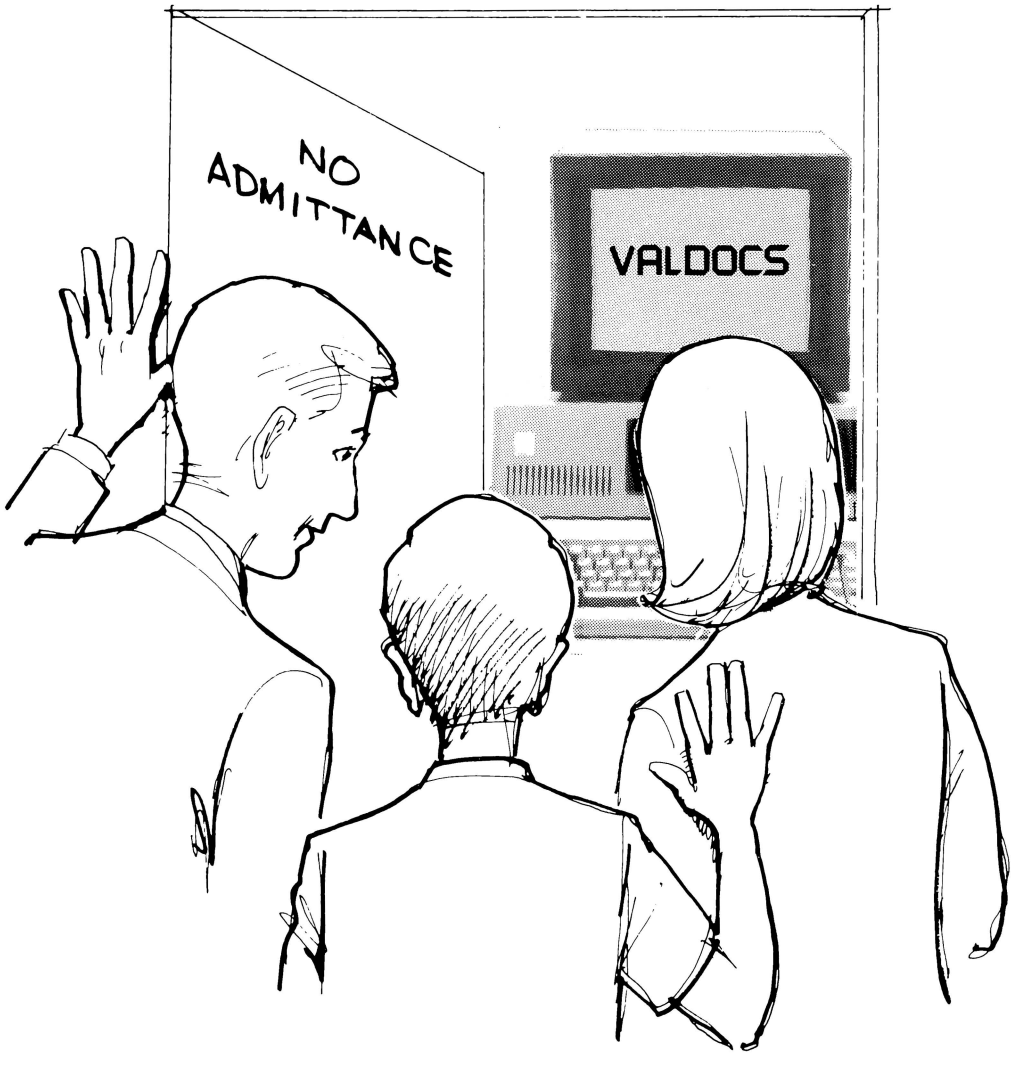
Larry released a heat seeking missile and Ralph had to dive quite suddenly. The missile turned to follow his airplane. Ralph pulled the plane to the left and the missile passed underneath him. Now it was Ralph's turn to attack.

Larry had been so intent watching the screen and following the small plane in the distance, that he had not considered his own defensive position. When Ralph banked to the left, Larry became a sitting duck. "Okay, Bye!" Ralph said releasing two sidewinder missiles. All he needed was one. It struck Larry's MIG and destroyed it. As Larry looked at his blinking red and yellow screen, Ralph stood up and stretched. "Splash one!" he laughed.

Back in the hallway, Elizabeth explained the rest of the operations structure. "We have two mainframes upstairs. Most of the QX systems running version 2.7 are tied into them directly with various mainframe terminal emulation capabilities." They stopped at an elevator. Elizabeth pushed the "up" button.

"On the fifth floor, there are six QX's that receive all of Pilk's Publishing's manuscripts and automatically typeset them. We also have several QX systems set up to receive and handle data from our outside salespeople." The elevator arrived and they stepped inside.

"By the way, these graphics are fantastic!" Larry said, referring to the elevator. "I love the quality. It looks so clean. Almost like it wasn't done with a dot-matrix printer." The elevator stopped at the fourth floor and the doors opened. "It wasn't," Elizabeth said casually. She walked around the corner and stopped at a QX system set into a wall unit. Next to it was a device that looked like a copy machine. "It was done on this. It's a Page Printer," she explained. "It's liquid crystal based and works very much like a Xerox machine. And in full color if you like!" Larry whistled softly. "The Page Printer is so nice because it can handle both text and bit-image graphics. At 60 pages per minute, it's really hard to go wrong!" Elizabeth pressed a button on the QX-10 and the disks whirred. A moment later, the printer spit out a sheet of paper. Elizabeth handed it to Larry. "This is unreal!" Larry said looking at the printed graph. "This is fantastic! I can remember when everybody said that the eight bit machine was dead." "Oh, they're far from dead. Our QX's that are tied to the mainframe are 16-bit QX-30's!", Elizabeth remarked. "In fact... " She removed her



entry card from her pocket and inserted it into the wall slot. The door popped open. "Take a look in here," Elizabeth was almost whispering. Larry and Ralph looked inside.

They saw several rows of desks with PC's on them. The screens all displayed various VALDOCS messages or graphs. "Hey... " Ralph turned to Larry. "Those computers are running VALDOCS and they aren't even made by... " Elizabeth pulled the door closed. "You guys didn't see that." She winked at them.

They walked down the hall and into the accounting office. Several accountants were busy working with yet more QX systems. Elizabeth sat down at one of the machines and turned it on. "This is one of the departments where we use the QX to its full potential." Larry and Ralph stood behind Elizabeth and watched over her shoulder. She pushed several buttons and a graph appeared on the screen. "This is our division breakdown over the past three months," Elizabeth explained. She pushed another button. The screen filled with text. "Now, I've just chained the minutes from our last board meeting onto the end of this graph." Larry nodded and rubbed his chin.

Elizabeth typed, "Sample Report", and pushed the SIZE key on the keyboard. The screen filled with options. She chose one and and pushed the return key. Now the words "Sample Report" were at the top of the screen in one inch- high letters.

"This is absolutely fantastic!" Ralph exclaimed. "I never dreamed this machine could do all of these things." Elizabeth looked up from the screen. "Well, Ralph," she said, "there's much more. Not only can I merge different files together, I can mix text and graphics. I can also send the bottom line figures of my financial spreadsheet to this report and save the rest of the spreadsheet as another file completely." She pushed some more buttons. "Then I can print this entire combination of graphics, text, and calculations as one document." As Elizabeth spoke, the Page Printer on the table next to her began to spit out copies of the sample report and board meeting she had assembled.

"Well, Liz... " Larry put his hand on Elizabeth's shoulder. "When do you want us to start?" She laughed. "Well, let's go up to my office."

Elizabeth looked across the desk at her two visitors. "It's very important to remember that people are needed in any company and can't be replaced with machines. At the same time, it's become obvious that computers play an important role in our business." She smiled. "So, I have a proposal for the two of you: I need a technical person and a writer to work together and write a history of the evolution of the QX-10 and what it can do now." Ralph looked at Larry and laughed. "No problem," they said, looking at each other eyes wide. Elizabeth was pleased. "Okay, then. Let's get started!"

The future of the QX-10 is obviously very bright. Not only are the people at Epson and Rising Star excited about this machine's future, but hundreds of computer programmers and designers are looking at the QX system as an avenue for software and hardware development. Because of the design of this system, the possibilities seem endless. The next question that comes to mind is, who will design the ultimate piece of QX hardware/software? How about you?

APPENDIX A

THE HELP MENUS

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PRNT—NOTREADY

The printer is either not READY, turned OFF, disconnected, or OUT—OF—PAPER. Please either make it READY, or press UNDO to return to the editor.

PRNT—MENU

Choose the type of printer you have with the SETUP program under MENU. If your printer is not listed, try OTHER. Most printers with a Centronics Interface will work then. Screen dump (CONTROL PRNT) probably won't work with non-Epson printers (it uses Epson graphics.) Printers with a "buffer" which is always on, or which always seem to double space have special settings on SETUP. See more HELP there.

The settings on the menu are "default" settings. If they're what you want, just press PRINT to start printing.

You can change any of the defaults by typing them in, then press STORE. Just press PRINT to use the settings one time only and leave the defaults alone.

Although most of the choices are self-explanatory, a few need explaining:

LINE SPACING — This ADDS spaces to what is shown on the screen.

STOP AFTER EACH PAGE — use this to print on single sheets such as letterhead.

LINES TO SKIP AT TOP — when printing one piece of paper at a time (such as letterhead), most printers can't print at the very top of the paper. So you have to tell the printer how many lines must be blank at the top of each sheet. For example, the FX80 MUST leave 5 lines blank to clear the tear bar. (If any printing was in this area on fan-fold paper, it will be lost when using single sheets.)

CORRESPONDENCE QUALITY — Epson printers have an "emphasized" mode that gives a "cleaner" printed page. Type "Y" if you want it.

INDX—00

Every time you press INDEX, you'll see a SEQUENTIAL listing —the order in which your documents were created. If the list is longer than the space on the screen, use NEXT

PAGE (SHIFT/DOWN ARROW) and PRIOR PAGE (SHIFT/UP ARROW) to scroll through the list.

Since <R>etrieve a single file is the first option, all you have to do is press RETURN to choose a document. Move the cursor (using the arrow keys) to the document and press RETURN. Your document will appear on the screen a few seconds later and you'll be returned to the editor.

If you want to see the listing of your documents in a different way, choose <A>lphabetic display or <C>ross-index display.

You can also change the index references of a document you've already stored by using the <I>ndex words change option; or <D>elete a document completely.

INDX—01

Use the up and down arrow keys to move the cursor to the file you want to retrieve. Then press RETURN. In a few seconds, you'll be returned to the editor and the document you want to edit will appear on the screen.

If you don't see the document you want, you can use SHIFT—UP ARROW (prior page) or SHIFT—DOWN—ARROW (next page) to see the additional documents you've stored on the disk. If you still can't find it, try another disk.

Be SURE to use Control M <C>hange disks to try another disk. If not, you WILL lose files on your disks!!)

INDX—02

If you want to change the name of a document you've stored on your data disk, use the up and down arrow keys to move the cursor to the file you want to change. Then press RETURN. Enter the new words you want to use to describe your document.

If you don't see the document you want, you can use SHIFT—UP ARROW (prior page) or SHIFT—DOWN—ARROW (next page) to see the additional documents you've stored on the disk. If you still can't find it, try another disk. Be sure to use Control M + C to try another disk. You may lose files if you don't!

INDX—03

Type in the words (index reference) you want to use to describe your document. (The index reference can be up to two lines long, with up to 16 keywords.) If there's an index reference already in the interaction window, you can change the entry using normal Valdocs editing commands or press RETURN to accept it the way it is.

INDX—04

Use the up and down arrow keys to move the cursor to the file you want to delete from your data disk. Then press RETURN.

If you don't see the document you want, you can use SHIFT—UP ARROW (prior page) or SHIFT—DOWN—ARROW (next page) to see the additional documents you've stored on the disk. If you still can't find it, try another disk. (Use Control M in the editor to change disks or you can lose files permanently!)

INDX—05

Make absolutely SURE that you want to erase this document. Once it's gone, there's NO WAY to bring it back.

INDX—06

Enter the date you want the sequential display to START with. If you just press RETURN, it will start at the earliest document on your data disk.

INDX—07

Enter a letter or a word where you want the alphabetic display to START. (For Example, "D" will position the display to show files whose "first" index word begins with "D".)

INDX—08

Enter a letter or word where you want the cross-index display to START. (For example, entering "C" will enter the cross-index at the first word starting with the letter "C".) Valdocs ignores 32 "noise words" — the most-commonly-used words in the English language:

a an and are at as be but by for from had have he her his I in is it not of on or that the this to was which with you

INDX—09

When you STORE a file, it's "put away" on your data disk and the document window is wiped clean — ready to work on another document.

If you want to SAVE your work (protect it from accidents), instead of storing (put it away), just press MENU. Then, after the MENU program appears, press UNDO. This protects you from power loss and other accidents. DO IT OFTEN! An INDEX REFERENCE

is what you use to keep track of your documents. It can be up to two lines long. Just type in the words you want to store the document under in the interaction window.

INDX—10

The RETRIEVE key can be used in two ways: either to get a document to do additional work on it, or to INSERT a document in a document you're presently working on.

Just type in the INDEX REFERENCE of the document you want to retrieve. Or, press INDEX, choose the [R]etrieve option, move the cursor (using the arrow keys) to the document you want, and press RETURN. In a few seconds, your document will appear on the screen and you'll be returned to the editor.

If you're not sure of exactly how the index reference is worded, just type in one of the words you remember. In a few seconds, you'll see a cross reference list of your document. You can then move the cursor to the document you want and press RETURN to retrieve it.

MAIL—00

You can send any document you've stored on disk via "electronic mail." MAIL also contains a comprehensive name and address book. You can send mail to anyone in your address book as well as print mailing labels.

After you choose to SEND some files, either NOW or LATER, you MUST leave the data disk containing these files in the right drive, otherwise MAIL won't be able to send them.

You'll need a MODEM to make full use of MAIL. (except for the address book.)

Use the SETUP program under the MENU key to tell the system what kind of modem you're using. Set both the BAUD RATE (see the modem manual) and the type of modem.

Also set WHO AM I in the address book before using the modem. This tells the system YOUR area code, etc.

If you're using a Hayes modem, the small internal DIP switches (behind the front cover) must be set correctly in order for MAIL to work: (as you face the switches, from left to right)

Up Up Dn Up Dn Up Dn Dn

MAIL—01

A "Valdocs Indexed File" is a document or graph you stored using the STORE key.

A non-indexed file consists of up to 8 letters, a period & a 3 letter "extension" to tell the type of file. (eg: LETTER.TXT or NOVEL.DOC). Most "non-indexed" files will be programs, or they will be .TXT (text) or .DOC (document) files from some other word-processor.

MAIL—02

If the correct number is displayed, say yes to proceed. If the number is incorrect, say no and you'll have the ability to try again. You can shift between address cards by using Shift UP and DOWN arrow. Or try another spelling.

MAIL—03

You may enter any info you wish on any line by typing in the data. The arrow keys and delete keys work exactly as in the editor.

The address book is sorted ONLY by LAST NAME. If you have frequently used cards that you wish to access easily, put the title you'd like to use in the LAST NAME blank. For example, if you call "CHRIS" often, you can put CHRIS in as the last name.

MAIL—04

Enter the LAST NAME of a person or company you have on an address card. If more than one person has the same last name, just enter the name, then move to the correct one using PRIOR or NEXT page. If this doesn't work, just press RETURN, then move the cursor to the actual one you wish.

MAIL—05

You can go ahead and print labels from your address book, or you can re-design the label format to use. You have to tell the computer how many labels are on the sheet, how far apart etc. Once you design the labels you may never have to change them again.

MAIL—06

The LAST NAME you typed in couldn't be located in the address book. Type the number you want to call. Or press UNDO and try again.

MAIL—07

IF you choose SEND NOW, the mail will be sent as soon as any other mail activity is completed. If you choose later, you can send the mail at a pre-determined time for a lower phone rate, etc.

If you choose later, you MUST leave the current disks in the computer. If you change disks, the system won't be able to find the files to send.

MAIL—08

It is necessary to enter the time as 24 hour time. That is, 8AM= 08:00 5PM = 17:00 10 PM= 22:00 midnight = 24:00

MAIL—09

The address book stores a series of address cards. These contain information such as name and address as well as telephone numbers.

There are two kinds of phone numbers. The voice phone is that which you would dial to talk to the person. The computer phone is that which the MAIL program will dial to send mail electronically. Remember to put area codes in front of ALL numbers, including your own area code.

The WHO AM I function identifies your current area code, any digits to dial out of a PBX phone system, lets you put a "1" in front of all other area codes etc. Set it NOW.

MAIL—10

Enter the last name of the label you wish to print. If you don't know the name, just enter RETURN to enter the list of names. Then you can select by cursor.

MAIL—13

If you want to delete this entry choose YES. Note that you CANNOT UNDO this deletion.

MAIL—16

〈W〉ho am I sets up MAIL with common information so you won't have to type it in every time. YOUR NAME is automatically sent with outgoing MAIL to identify you to the person on the other side.

"CURRENT AREA CODE" — When you enter phone numbers in your address book, enter the FULL number including the area code even if the number is in your area code. (But don't enter a "1" before the number — see below.) MAIL will ignore the "extra" area code. However, if you move your system or take Valdocs with you to another area code, all you need do is CHANGE the current area code in "Who Am I"to the area code in which your QX—10 is located.

ONE DIGIT AREA CODE PREFACE" — In most areas of the country, it's a "1." (Don't type a "1" before numbers on your address cards — since this Who Am I option will automatically add it.)

DIAL THIS TO CALL OUT — If you're using Valdocs in an office with a central telephone system, you might have to dial a "9" to get an "outside" line. Enter the outside access code (if there is one) and you won't have to add it to every number in your address cards. If your phone system needs to pause, enter one or more commas, each one is equal to a 2-second pause. PULSE OR TONE DIALING — If you have TouchTone(tm) service, enter "T" — otherwise enter "P."

MAIL—18

Label design is a snap once you get the hang of it. Use the cursor control keys to move the cursor around the label format shown.

Each item from the address card has a single Letter assigned to it. Press the letter and the item appears in the label format. For example, press F if you want first name to appear. Delete items with the LEFT delete key [x].

To change the number of lines, remember that you must change the number of lines in the first part of the design.

MAIL—19

If you choose ALL names, the entire address book will be printed. Single name allows you to choose specific names from which to print labels.

MAIL—22

It doesn't matter who ANSWERS or who ORIGINATES (regardless of who's sending or receiving). However, one side must ANSWER and the other ORIGINATE. Pick one!

MAIL—23

For whatever reason (noise on the phone line, etc.) the system thinks the modem is not connected. Make sure it is properly connected, (turn off the power if you need to go inside the system box). Usually, it is necessary to recycle the mail program by pressing COPYDISK, then MAIL. This loads MAIL freshly. If it is still hung up, RESET the system. That should handle it.

MAIL—24

Slow is 300 baud (sometimes called bps — bits per second).

Fast is 1200 baud (or bps).

MAIL—26

The inbasket is where all incoming mail particles will reside. If the status column says OK, that means that everything proceeded normally and the incoming mail was verified as being a correct copy of what was sent. If it says ANYTHING other than ok, what you have in the inbasket is "garbage" and you should DELETE it.

It is listed so you know that someone tried to send you something.

When non-Valdocs files are received, MAIL gives them file names starting with RECV (for receive) plus a number sequence starting at 0000 and automatically incrementing. Thus the file could be named RECV0002.RCV. To store this, you'll need to know if it is text or a program. If it is text you'll probably want to store it as an INDEXED file. If it is a program you'll want to store it as a NON-INDEXED file. You'll get that choice after you choose STORE.

Watching an incoming file shows you a counter that increments by one every 128 characters. It can be interesting to watch this, but sometimes it can cut down the data transfer rate by as much as 50%! So use it sparingly.

MAIL—27

The outbasket lists all files that you have told the system to SEND. If you said SEND LATER, the time TO BE SENT will be shown. After a file is sent, the completion time of the SEND is listed. If the status is OK that means the transfer was successful.

After a file is sent, you can delete it from the outbasket, in order to clean things up.

MAIL—25

You are in person to person. If you wish to RECEIVE a file from the person you are connected to, choose RECEIVE. To send, choose SEND. To resume direct contact with person choose TALK. While talking, you can toggle the printer on and off with the PRINT button.

MAIL—29

Once you tell the system to delete an entry, you cannot UNDO it, so be certain that you've selected the right one.

MAIL—30

Not enough room exists on the disk. Either DELETE an item from the outbasket, SEND an item to clear up a space, or perhaps use COPYDISK to erase a file on the disk to make

room. (CAREFUL!! if you're not sure what you're erasing, you could erase an important file.)

MAIL—31

You can scan through the file a visual page at a time using the prior and next page keys (Shift plus UP/DOWN arrow). Use the cursor to select to STORE or DELETE or FORWARD the message.

If what you view is just scattered characters, either the file was NOT received ok, as indicated in the status column, or you are trying to view a program — which is just about impossible.

If its a garbaged TEXT file, delete it. If its a program, STORE it.

MAIL—34

No address book exists in the system. Tell the system how big to make it and it will. If you just press RETURN, it will try to make a 50 name address book, or the largest possible (if there's only room for 35, 35 is what you'll get.) On a floppy based system, the system disk has very little room, so place it on the data disk. When you've entered your names, be sure to copy it onto a blank disk, and keep a copy in a safe place! You wouldn't want to have to retype in all those addresses because of an accident!

MAIL—35

There's no such file on the disk, so try another name. If you need to look on another disk, RETURN TO THE EDITOR, DO CONTROL MC to change the disk, and then try again.

MAIL—36

The system had a problem with the filename. Either a simple mistake was made, in which case just try again, or the disk has a serious problem of a highly technical nature, so try your backup data disk. (You DO make backups regularly, don't you?)

CPYD—00

〈C〉opy a Disk makes an EXACT copy of a disk you place in the LEFT drive to a blank disk in the RIGHT drive.

〈M〉ake a Data Disk is used to prepare a new disk to receive data, or to completely erase everything on an old disk. 〈S〉ingle file copy lets you copy single documents, graphs or TP/MII—/CP/M files from one disk to the other.

Valdocs will tell you when to insert and/or remove the disks.
While copying is going on, you can use the red STOP key to stop the process.

CPYD—01

Press the PUSH button on the front of the LEFT floppy disk drive and remove the disk that's in the drive (if you won't be using it). Then insert the disk which you want to copy.
Insert disks into the disk drives with the LABEL facing up, and the NOTCH on the left. (Make sure the notch isn't covered! If it's covered, the disk is WRITE PROTECTED, and you won't be able to format it or copy onto it.)
The "Source disk" is the disk you're copying FROM. In Valdocs, the SOURCE disk always goes into the LEFT drive.

CPYD—02

Valdocs is done copying. Before you go any further, make sure the Valdocs System disk is in the LEFT drive and a DATA disk is in the RIGHT drive. Then press RETURN.
If you want to return to the editor, press UNDO.

CPYD—17

Use 376K — the standard format used by the QX-10 in the U.S. 300K is available for compatibility with certain other computers.

CPYD—18

When you press the STOP key during the COPY/FORMAT process, it stops the operation after completing the current track. Once you've STOPPED a copy or format, you'll have to start again FROM THE BEGINNING. — otherwise, you're likely to loose data.

CPYD—03

The disk in the RIGHT drive is now formatted and ready to be used for storing your Valdocs documents. If you won't be doing any more formatting or copying, put the VALDOCS SYSTEM DISK in the LEFT drive, a DATA disk in the right drive, and press RETURN. Then press UNDO to return to the editor.

CPYD—30

Disk management requires knowledge of the INTERNAL working of the operating system. If you are not SURE you know what the effects of a choice will be, UNDO OUT OF THE MENU. Disk management, improperly used, CAN destroy data and system files.

When files are erased and re-written on disks, the directory fills up with old information. Making a new directory cleans it all up. In a hard disk, this can result in a noticeable improvement in performance. When the new directory is made, the old one is preserved, in case you need it later. If errors occur while making the new directory, you could lose data, so it is VERY important to make a backup of the disk before even trying.

CPYD—31

Choose the disk which you want to work on. Type its "official" letter name (A,B,C etc.) or LEFT or RIGHT if its on the floppies.

CPYD—32

The CROSSED BLOCK message means that something has "smashed" the directory on your disk. Two files claim to possess the SAME block of data, an impossible condition. You can erase one of the directory entries, or let the system try to sort it out. BOTH are dangerous! Without an intimate knowledge of what's going on you might just destroy ALL your data. If you are not ABSOLUTELY sure what you're doing, PRESS UNDO!

CPYD—33

The new directory has been made. This is your last chance to forget the whole thing and cancel the operation. After this, recovering any files you accidentally deleted will be TOTALLY impossible.

CPYD—34

Enter the TP/M file name. This is generally only useful if nothing has been written on the disk since you erased the file. If you've written more files since the erasure, the system will probably tell you "no can do".

CPYD—36

Using an old directory when the disk has been written on with other files can cause total loss of ALL files. Therefore, BE SURE you know what you're doing. If in doubt, DON'T

CPYD—04

Valdocs has encountered an error while formatting the disk in the RIGHT drive.

The disk might be defective, or there may be a crease or puncture in the magnetic material. Another common cause is poor centering of the disk in the drive. Remove the disk from the drive and make sure the hole is centered in the disk jacket. Then put it back in the drive, pushing the button slowly, and try to format it again.

If it still won't format correctly, try another disk.

CPYD—05

Press the PUSH button on the front of the RIGHT floppy disk drive and remove the disk that's in the drive (if you won't be using it). Then insert the disk you want to make a copy on.

Insert disks into the disk drives with the LABEL facing up, and the NOTCH on the left. (Make sure the notch isn't covered! If it's covered, the disk is WRITE PROTECTED, and you won't be able to format it or copy onto it.)

The "Destination disk" is the disk you're copying TO. In Valdocs, the DESTINATION disk always goes into the RIGHT drive.

CPYD—06

The disk in the RIGHT drive may not be the one you thought it was; there's information on it. If you're sure you want to use it, just press RETURN. (But remember: the information on the disk will be destroyed.)

Use <I>nsert another disk if you want to insert a different disk in the RIGHT drive.

If you're not sure what's on the disk, use <S>how directory of disk to see a list of the files on it.

CPYD—11

A "Valdocs Indexed File" is a document or graph you stored using the STORE key.

A "Non-Indexed" file is the 11-character name that the operating system uses to store files. You'll seldom need to copy a "non-indexed" file. If you're not sure what you're doing, don't indiscriminately copy non-indexed files. You could create problems that could result in Valdocs not operating correctly.

DO IT!!!!! Press UNDO.

CPYD—40

Decide if you want to COPY a file from one disk to another, or if you want to erase a file. BE CAREFUL if you decide to erase! You won't be able to UNDO.

CPYD—41

A Valdocs file is a file you STORED in the INDEX. A non indexed file is a file listed by its TP/M or CP/M file name.

CPYD—42

If you're copying from Floppy to Floppy, put the specific diskette you wish to copy from into either the left or right drive NOW, and then enter LEFT or RIGHT as the source disk. If you're using the hard disk, you'll need to use "official" names like A,B, or C. Consult your manuals for information on this.

CPYD—43

If you're copying from floppy to floppy, put the diskette you wish to copy ONTO (the destination disk) in the OTHER drive now. Then tell the system which drive its in — Left or Right. On a hard disk system you'll use the "real" disk names as laid out in the manuals.

CPYD—44

Use the cursor control keys to select a file or program to copy, erase, or RUN from MENU, as the case may be. Then press return.

Use prior/next page (SHIFT + UP/DOWN arrow) to page through the list if it is longer than what is displayed.

CPYD—45

If you want to change the name of the file on the destination drive this is your chance. Enter the new file name, then press return.

CPYD—46

Carēful! You can erase the source file if you so choose. This can be used when you want to clear off some space on the source disk by moving a file to another disk.

SCHD—00

Valdocs' SCHED is a time machine — a general-purpose manipulator of time. It includes:

1. An appointment book and notepad
2. An itinerary printer
3. An event timer
4. A general purpose clock and calendar

When you press SCHED, Valdocs reads the QX-10's built-in calendar and displays an appointment book for today.

Flipping through the calendar is easy — just use PRIOR PAGE and NEXT PAGE to go backwards or forwards a day at a time.

SCHD—01

〈E〉nter or change an appointment lets you fill in appointments or notes for any time on your day's calendar. Just press RETURN and use the cursor keys to move the cursor to the time you desire. If you make a mistake, use Valdocs' normal editing keys. (Don't worry! You can't can't erase or write over the times that appear on the screen. Valdocs protects them.)

〈R〉eserve a block of time lets you "lock" a block of time so that nothing more can be scheduled in it.

〈U〉nreserve a block of time lets you "unlock" blocks of time that you've previously locked.

SCHD—02

Use the arrow keys to move the cursor to the time where you want to enter a note or appointment. When you've entered all your appointments for the day, press STORE and they'll be filed away for future reference.

SCHD—03

Reserving a block of time on your appointment page will make sure that you won't accidentally put other appointments in that time frame.

To reserve a block, just use the arrow keys to move the cursor to the beginning of the block and press RETURN. Then move the cursor the end of the block of time and press

RETURN again. The block will be marked with a vertical line to let you know that you've reserved it.

SCHD—04

If you change your mind about reserving a block of time, you can "un-reserve" it by using the arrow keys to move the cursor to the block. When you press RETURN, the block will be un-reserved. (You can still reserve blocks later anywhere in the day.)

SCHD—05

Valdocs' scheduler is pretty smart when it comes to figuring out which day you want to go to. Although you can enter the full date in the normal manner by typing in the entire date in the normal way, you can also type things like "-100" (100 days before today), "+23" (23 days from today), or "12" (the 12th of the current month). Also try things like "2nd tues" or "3rd Wed" or "today".

SCHD—06

Valdocs' Timer gives you an "electronic stopwatch" for timing meetings, events, telephone calls, etc.

〈S〉tart timing starts the internal stopwatch.

〈E〉nd timing stops the internal stopwatch and displays the elapsed time in the upper right-hand corner of the window.

〈R〉eset timer to zero resets the internal stopwatch.

〈I〉nsert time inserts the elapsed time at the current cursor position in the document you're editing.

〈D〉isplay time switches the time display to hours:minutes: seconds. Choosing it again returns it to a display of hours and hundredth of hours. Decimal time can be used by the calculator to compute billing time.

SCHD—07

Use the note page to type in any notes or messages you want for the date that's displayed. You can use arrow and delete keys to enter or change your notes.

SCHD—09

〈S〉et the clock lets you set or change the QX-10's internal clock. Once you've set it, you shouldn't have to set it again since the internal battery keeps the clock running even when the system is off. Use the SETUP program under MENU to change to "24 hour" time display.

〈A〉lter the calendar lets you set or change the date. It's also kept track of by the QX-10's internal clock.

〈C〉hange appointment book time divisions lets you change the appearance of the appointment book to match YOUR needs. Just type in the times YOU wish, then press STORE when finished.

SCHD—10

Enter the correct time for Valdocs internal clock. Use the NEXT minute, and press RETURN when the seconds are 00.

SCHD—11

If the QX-10's internal calendar isn't right, make the necessary corrections. In the first Blank (DAY) enter a number from 1 to 31. In MONTH, you may enter the written month (May, Jan, etc.) or a number for the month. For YEAR, enter the number of the year.

You only need to change what is WRONG. For example, If only the MONTH is wrong, you only need change the month.

SCHD—12

Use the cursor controls and delete keys, and just type in your changes to the time divisions. You can use ANY divisions (or none) that you need. Just press STORE when finished. Note that your appointments don't shift around to follow the time markings. You may have to tidy up.

SCHD—13

Valdocs will print an itinerary for whatever date(s) you enter. The appointment pages will be printed down the left side of the paper, and the note pages contents will be printed down the right. Thus you can have addresses, timetables, etc. as part of your printed itinerary.

If the date shown is the correct first day of your itinerary, just press RETURN. Otherwise, choose the 〈G〉oto option, press RETURN, and enter the correct date.

SCHD—14

If the date shown is the correct last day of your itinerary, just press RETURN. Otherwise, choose the 〈G〉oto option, press RETURN, and enter the correct date.

SCHD—15

Is this correct? If not, go back and choose the correct dates.

DRAW—00

Graphics are a powerful tool, allowing you to present information in an easy-to-understand visual manner.

DRAW lets you easily create Pie Charts, Bar Graphs, Line Graphs, and Scientific Graphs.

Which chart or graph you'll want to create is a matter of personal preference, and (more importantly) the data you'll be using. Pie charts are best if you want to show percentages, how individual items fit into the whole. If you want to show discrete amounts at intervals, a bar graph is best. Line charts are best for showing changes over a period of time and scientific charts are the choice if you want to plot individual points.

You can print charts and graphs on an Epson and some other similar dot-matrix printers. Also, the printing SPOOLER doesn't operate when Valdocs is printing out a chart or graph —you'll have to wait until printing is finished before you can do anything else.

MENU—00

A menu of applications will show you the executable programs available on any disk. Choose this and look on the LEFT drive to run SETUP. Directory will show you ALL the files on any disk.

To run non-valdocs applications, place the disk with the application in the either the LEFT or the RIGHT drive, then tell MENU which drive disk is in. When finished with the application, it is best to replace the system and data disks and press RESET.

MENU—01

Some applications need information supplied to them when you run them. If the one you want is of that type, type it in now. Consult the manual for the application if you're in doubt. The three Valdocs applications, RESTART, VERSION and SETUP require nothing here.

SETUP—00

The setup program is used to set user choices of various options. 〈T〉ime/Date is an alternative to using the SCHEDULER program for setting the internal clock/calendar. Includes choice of 24/12 hour time display.

〈C〉ommunications options allow the Serial port Baud Rate and other options to be set.

〈E〉xperience level runs from Beginner to Expert and turns different features on and off.

〈P〉rinter and 〈M〉odem Type tells the system what kind of physical devices you have hooked up.

SETUP—01

〈D〉ate allows you to set the calendar.
〈C〉urrent time allows you to set the clock.
〈T〉ime format changes from 12 hour to 24 hour display of the time.
〈S〉how current Date/Time updates the time displayed on the menu.

SETUP—02

Enter the date in the form MM/DD/YY. I.E. 12/25/83 equals December 25, 1983.

SETUP—03

Enter the current date in 24 hour time. I.E, 07:00 + 7 AM. 21:00 + 9 PM. 24:00 + midnight, etc.

SETUP—04

BEGINNER = Anyone with no experience in either Valdocs or computers.
NOVICE = Anyone who has become comfortable with the workings of the Valdocs system. Adds CONTROL Q menu to editor. Requires knowledge of TP/M or CP/M filenames and directories.
ADVANCED = Experienced in Valdocs and has working knowledge of the EXTERNALS of TP/M (or CP/M) operating systems. Allows exit to operating system under MENU program. User should be familiar with file renaming, erasing, etc. Requires certain cautions.
EXPERT = Provides DISK MANAGEMENT option in Copydisk program. Requires knowledge of the INTERNAL workings of the operating system.

SETUP—05

Choose the printer type you intend to use. Almost any printer with a Centronics interface will work if you choose OTHER. For now, serial printers CANNOT be used to "spool" valdocs files.

When OTHER is used, BOLD prints by using head backspace. Italic uses backspace followed by underline.

All Epson and Comrex printers can underline instead of using Italics if you define them as OTHER.

The AUTO LF(line feed) option is used if your printer seems to double space no matter what you do.

Some printers (like the Comriter 1 and 2) have a buffer that cannot be turned off. Since the computer can send characters MUCH faster than the printer can print them, this buffer will fill up. This means that when you press STOP, the printer will keep right on printing — sometimes for many minutes. Also, the computer may think that you're at the end of a sheet of paper LONG before the printer actually gets there, which can lock up the whole computer. Therefore:

1. If your printer's buffer can be turned off (as in the FX-80), make sure it IS off, and tell the system you have NO permanent buffer.
2. If your printer's buffer can't be turned off (like the Comriter's) tell the computer the buffer is permanent.
3. A new entry will appear asking how fast (in characters per second) the printer is. Set a number slightly higher than the speed of your printer. For example, on a 16CPS Comriter, try 20 CPS.

Overall, the printer will print slightly slower than with a "wide open buffer", but the system will act more naturally. If you want the speed instead, set the CPS MUCH higher than the actual speed.

SETUP—06

Choose the type of modem you intend to use. Choose OTHER for modems that will hook up to the serial port but which are manually operated (includes all accoustic coupled or manual modems.).

If the modem connects to the serial port, remember to set the correct BAUD RATE under the communications options.

SETUP—07

When you have a hard disk, you have more than 2 disks. So under SETUP, you can tell the system WHICH disk will be the "system" disk, and which disk will be the "data" disk.

Disks have names like "A", "B", "C", etc. See the operating system manuals for more information.

SETUP—08

"Baud Rate" is used to select "how fast" the RS-232 interface on the back of the QX-10 will run. Consult the manual of the device you wish to hook up for the appropriate setting.

TTY is short for "teletype" and this tells the system how many characters to wait after doing a carriage return before starting to send data again. It allows the device to keep up with the data. You'll probably never have to change this.

The serial port is set with certain technical choices as fixed values. The values chosen are perfect for information utilities like The Source or Compuserve and most hardware can match this. The settings are:

8 Data bits, 1 Stop bits, No parity

FATAL—ERROR

If you see this message, there is a serious problem with your Valdocs Software. Make another copy of your master disk and try again. If the problem occurs again, see your dealer.

APPENDIX B

QX-10 SPECIFICATIONS (VALDOCS VERSION)

CPU and Memory

Main CPU	NEC780 Microprocessor, (Z80A-compatible) 4 MHZ Clockrate
Main Memory	256K RAM
CMOS Memory	2K RAM Battery Backup
IPL Up to 8K	

Controllers

Video/Graphics	NEC 7220 Graphic Display Controller
Disk	Double-Density Floppy Disk Controller
DMA	Programmable DMA Controllers 1 Main System 1 Option Slot (total 7 DMA Channels)
Interrupt	Programmable Interrupt Controllers 15 Interrupt Levels
Control/Timer	Two Programmable Interval Timers
Printer I/F	Programmable Parallel Interface
Serial I/F	Multi-protocol Serial Controller
Clock	CMOS Realtime Clock/Calender with Battery Backup

Display

12" Green Monochrome High-Resolution Monitor,
640 x 400 Pixels
80 Characters x 25 Lines
Non-Glare Screen
Dedicated Memory 32K or 128K

Mass Storage

Two 5¼" Double-Sided, Double-Density
Floppy Disk Drives
Capacity: 340K per Drive

Interfaces

Parallel	Standard Centronics Parallel
Serial	RS-232C Programmable, DB-25 Connector, Synchronous or Asynchronous
Printer	Standard Centronics Parallel
Light Pen	
Option Slots	Five
Speaker	Controlled by Countertimer

Environmental Requirements

Temperature	Operating Range 41 to 104 Degrees
Humidity	Operating Rance 10 to 80 Percent

Power Requirements 115 VAC, 60 Hz; with Switching Power Supply
100 Watts

DIP SWITCH SETTINGS

In the back of the CPU there is a bank of eight dip switches. When you first receive your system, dip switch number one should be the only switch that is DOWN. If it is not, the system will not boot properly. Listed here are the assignments for all eight dip switches. They are used for diagnostics (testing) throughout the system. ONLY A QUALIFIED EPSON SERVICE TECHNICIAN SHOULD CHANGE ANY OF THE DIP SWITCHES! If you change the dip switch settings and the results harm your machine, you may void your warranty!

MAIN MEMORY	*VRAM	1	2	3	4	**5	6	7	8
64K	32K	x	x	x	x	x	on	on	on
	128K	x	x	x	x	x	off	on	on
64K	32K	x	x	x	x	x	on	off	off
	128K	x	x	x	x	x	off	off	off

* Video RAM
** Will be set later in preparation for CMOS RAM testing.

APPENDIX C

COMPUTER DICTIONARY
VERSION 1.1

A>: The ready to receive signal from the computer. The "A" means the A disk drive. The ">" indicates "READY". If you were logged onto the "B" disk, then the ready signal would look like this: B>.

ACOUSTIC COUPLER: The device that connects the telephone handset to the data transfer equipment. (see MODEM)

ADDRESS: A number that shows the position of a word in memory. For example, 16-bit addresses range from 0 to 64K.

ALGORITHIM: A step-by-step specification of the solution to a problem that results in finite time.

ALPHANUMERIC: All alphabetic and numeric characters.

ALU: Arithmetic Logic Unit (the processor).

ANALOG: Having a continuous range of voltage and/or current values. In contrast to DIGITAL. (i.e., a watch with minute and second hands is an *analog* display. If it has an LED readout, it is *digital.*

ANSI: American National Standards Institute.

APPLE: The fleshy usually rounded red or yellow edible pome fruit of a tree of the rose family.

APL: A high level programming language, used for algorithmic interactive programming.

ARCHITECTURE: The selection, design, and implementation of the principal components of a system.

ARITHMETIC STATEMENT: Instruction specifying an arithmetic operation.

ASCII: American Standard Code for Information Interchange. Most non-IBM equipment uses the ASCII codes.

ASCII KEYBOARD: A keyboard that includes all of the character codes for the ASCII set.

ASSEMBLER: A compiler for machine language. It takes the mnemonic form of the computer's language and converts it to binary object code.

ASSEMBLY LANGUAGE: Hardware dependent symbolic language.

ASYNCHRONOUS: A device that is not synchronous with the Computer CPU (or other device) timing.

BAAAA: A computer term used by programmers who need professional help.

BACKUP COPY: A duplicate copy preserved on another medium (e.g. floppy disk or cartridge) in case of loss of the original data or program.

BANK SWITCH: Moving from one block of memory to another.

BASIC: Beginner's All-purpose Symbolic Instruction Code.

BAUD: The number of bits transmitted per second. (See BIT)

BDOS: Basic Disk Operating System. Instruction set for handling of data between disks and the CPU. (see BIOS)

BENCHMARK PROGRAM: A program written to test and calibrate the speed of a computer in a well defined situation. (e.g., compilation or sorting).

BIDIRECTIONAL: Data flow may go in either direction on a wire. Each end of the wire has both *receive* and *transmit* transceivers.

BIDIRECTIONAL PRINTING: Alternately printing in either direction.

BINARY NUMBER: Representation of an integer as a sum of powers of 2, using a sequence of 0s and 1s.

BIOS: Basic Input Output System. A train station for computer information. Always hardware dependent.

BISYNC: BInary SYN-chronous Communications protocol.

BIT: A bit is a 0 or a 1. A contraction of a binary digit. Bits are usually grouped in larger units such as "Nibbles" (4), "Bytes" (8), or "Words" (16,24,32,86,or more).

BIT-IMAGE: A point consisting of an X and Y coordinate. Usually used in graphics (screen and printing).

BLOCK: Usually means a group. In text files, more than one sentence. Also means a group of memory.

BOOT: Term used when starting up a computer system. Refers to progressive instruction execution.(see BOOTSTRAP)

BOOTSTRAP: A program to start the computer. It usually clears memory, sets up I/O devices, and loads the operating system from ROM, disk, or cassette.

BPI: Bits Per Inch. Specifies the density of data recorded on tape or disk.

BRAINSTORM: Sudden idea transmitted through jabbering programmers. Usually tropical.

BUFFER: A temporary storage place for data in a data communications path.

BUG: A mistake. Elimination of errors from a program is called *debugging*. Comes from removing moths from the old mainframe systems.

BULK STORAGE: Large capacity data storage.

BURN-IN: A period of hardware testing where errors or failures are encountered and corrected. Manufacturers burn-in is usually performed in a heated area.

BUS: a) A path for signals having a common function. Every standard MPU consists of three buses — The data bus, address bus, and control bus. (see MPU). b) A method of transportation. (see DRIVER)

BYTE: A group of eight bits. A byte is used to represent a character.

CACHE: A section of memory put aside for data storage; usually short term.

CAD/CAM: Computer Aided Design/Computer Aided Manufacturing.

CAI: Computer Aided Instruction.

CARD: A printed circuit card.

CARRIAGE RETURN: A standard typewriter key that causes the printing element to move back to the beginning of the line. A computer usually interprets this to mean the end of a line or command.

CASSETTE: A tape storage medium similar to audio cassettes.

CBASIC: A popular BASIC compiler for 8080, Z80, or 8085 micro-computers. Most BASICs are interpreted rather than compiled.

CCP: Console Command Processor.

CENTRONICS: An industry standard form of parallel data connectors (see PARALLEL).

CHARACTER SET: The collection of characters available for display or processing on a particular computer or peripheral.

CHARACTER STRING: A one dimensional array or sequence of characters.

CHIP: A rectangular silicon die cut from a wafer. All LSI packages are chips. (see LSI)

CLOCK: The reference timing source in a system.

CLOCK RATE: The oscillation rate of the clock, usually expressed in Megahertz (MHz). (see MEGA HERTZ)

CLOSE: An operation performed on a file which disassociates it from a particular program.

COBOL: COmmon Business Oriented Language. A high level language with "English-like" statements designed for business applications.

CODE: Programming language statements or a symbolic representation for data.

COMMUNICATIONS: (see TELECOMMUNICATIONS.)

COMPILER: A translation program that converts high level instructions into a set of binary instructions (Object Code) for direct processor execution.

COMPOSITE COLOR: A single video signal including all of the necessary data for color display on a CRT. (see CRT).

COMPUTER: A programmable electronic device that can store, retrieve, and process information (data).

COMPU-HEAVEN: Where all good computers go!

COMPUTER SALESMAN: (a) An individual who will assist you in the definition, organization, and selection of a computer system. (b) see USED CAR SALESMAN.

CONFIGURE: To design and allocate.

CONSOLE: The terminal that has the most control in a system. Front panel, TTY, or other device. (see TTY)

CONTROL BUS: The set of control lines (10 to 100) in a computer system. It's function is to carry the necessary synchronization and control information thoughout the system. Examples of signals carried on these lines are: READ, WRITE (orders), INTERRUPT, HOLD, ACKNOWLEDGE (sync signals).

CONTROL CHARACTERS: Characters having specific system-dependent meanings.

CONTROL KEYS: A set of input keys that have a dedicated (programmable) function.

CONTROLLER: A circuit board or boards that interface a peripheral to the computer, usually having sophisticated circuitry to releive the processor of device-control responsibilities.

CP+: A menu-driven software package written by Taurus Software. Used with CP/M, allows "user-friendly" interface.

CP/M: Control Program for MicroProcessors. A single user operating system for 8080 based microcomputers created by Digital Research.

CP/M 80: 8-bit version of CP/M (8080, Z80, Z80A, 280B, NEC 780, 8085 processors).

CP/M 86: 16-bit version of CP/M (8088, 8086, 80188, 80186 processors).

CPS: Characters per second.

CPU: Central Processing Unit.

CR: Carriage Return.

CRASH: A situation where the system becomes inoperative due to a hardware or software malfunction.

CROSS-INDEX: Indexing by catagories of specific words, letters, or other characters.

CRT: Cathode Ray Tube. A video monitor.

CRTC: A CRT Controller.

CTS: Clear To Send (RS-232C standard) signal used in computer communications.

CU: Control Unit.

CURRENT LOOP: A way to communicate data via presence or absence of current on a two-wire cable. Often associated with 110-baud TTYs.

CURSOR: A special symbol appearing on video displays that indicated the position of the next character to be inserted or deleted by the operator.

DAISY-WHEEL PRINTER: An impact (letter quality) printer that uses radial spokes with characters to strike the paper.

DATA: Information.

DATA BASE: A systematic organization of data files for central access, retrieval, and update.

DATA CASSETTE: A tape cassette used to store data.

DATA DISK: A storage media used with micro computers to store information (see FLOPPY DISK, HARD DISK).

DATA FILE: a named collection of information.

DATA TRANSFER RATE: The speed of transfer of data from one place to another (e.g. memory to disk).

DBMS: Data Base Management System.

DCE: Data Communications Equipment. Often, a modem. (see MODEM)

DEBUGGING: Eliminating the errors (bugs) in a system (see BUG).

DECIMAL: A period used with numeric data in a program. Also used to seperate blocks of data information.

DEFAULT PARAMETERS: The parameter values supplied by a computer system when no direct values are provided by a program or operator.

DEL: DELete character in ASCII. (see ASCII)

DIAGNOSTICS: A series of routines to diagnose system malfunctions.

DIGITAL: Having discrete states. Digital equipment may have anywhere from two to sixteen states.

DIP: Dual In-line Package. A standard IC package with two rows of pins at 0.1 inch intervals. (see IC)

DIP SWITCH: A collection of small switches on a DIP used to modify instruction without modifying the hardware.

DISK MANAGEMENT: The computer maintenance of a floppy or hard disk.

DIRECTORY: A table of contents of a file system.

DISK: Any flat, circular magnetic storage medium that is continously rotated while in use.

DISK CONTROLLER CARD: A printed circuit board that interfaces disk storage hardware to the CPU of a computer.

DISPLAY: A computer output device such as a CRT (see CRT).

DMA: Direct Memory Access. The method used to provide high-speed data transfers between a peripheral and the main memory.

DMAC: Direct Memory Access Controller.

DOS: Disk Operating System.

DOCUMENT: A data file, usually referring to a word processing file.

DOT-ADDRESSABLE: The ability to identify and manipulate each dot in a matrix on a video screen or printer.

DOT-MATRIX: A method of forming characters by using many small dots with X and Y co-ordinates.

DOUBLE DENSITY: The techniques used to double bit density on a magnetic storage medium.

DOUBLE SIDED DISK: A type of disk with both sides available for the storage of data.

DP: Data Processing.

DRIVE: A mechanical plus electrical/electronic device used to get and put data on a disk.

DRIVER: (a) An amplifier circuit to reshape signals on a bus when more than one TTL load is present (see TTL). (b) The man who operates the bus.

DTE: Data Terminal Equipment.

DUMB TERMINAL: A low cost data terminal, usually a CRT, which lacks complicated features such as editing keys or local processing. (see CRT)

DUMP: An operation in which the contents of one memory level are recorded to another one (e.g., memory can be dumped to disk or to a printer).

DUPLEX: A bidirectional communication method that allows simultanious data transfers in both directions. (see FULL DUPLEX, HALF DUPLEX)

DYNAMIC MEMORY: MOS RAM using dynamic circuits. Dynamic memory is usually less expensive than static ones, and are preferred for memory sizes over 16K. (see MOS RAM)

EBCDIC: Extended Binary Coded Decimal Interchange Code. Similar to ASCII, but used in a different numerical order. The 8-bit code used by IBM. (see ASCII)

ECHO: A character received from the keyboard is fed back to the video screen or to the printer

EDITOR: A program designed to make text entry into the computer a direct process.

EDP: Electronic Data Processing

EIA-RS-232C: The standard serial data transmission interface used for asynchronous communications. Data is sent in 10- or 11- bit serial bundles. RS-232C ports are used for modems, printers, plotters, and other peripheral devices. (see RS-232C)

ELECTRIC TOASTER: Similar to an Epson QX-10 in its ease of use.

ELECTRONIC MAIL: Transmission and reception of information electronically between computer systems.

ELECTRONIC SPREADSHEET: A software package designed to help solve mathematical problems. An electronic grid made up of rows and columns is used to manipulate numeric data.

EMULATION: Simulation in real time. The ability for computer "A" to act exactly like computer "B".

END: A statement usually meaning the end of a program.

EOF: End Of File.

ERROR-TRAP: A condition that halts operation of a program upon recognition of an error.

ESC: ESCape.

FAN-FOLD PAPER: Continuous sheets of paper joined along perforations and folded in a zig-zag fashion.

FATAL ERROR: An unexpected condition caused either by hardware or software error or failure. The program will not run after a Fatal Error is encountered.

FD: Floppy Disk.

FDC: Floppy Disk Controller.

FIFO: First-In-First-Out.

FILE: A logical body of information.

FILE EXTENSIONS: The period and last characters of a CP/M or TP/M filename used for identification by the CPU (e.g. .SYS, .COM, .TXT).

FIRMWARE: Software stored in a ROM (see ROM).

FLAG: A status indicator associated with a special condition.

FLEXIBLE DISK: A mass storage device using flexible mylar in a disk shape to record information (see FD).

FLOWCHART: The concept of mapping out the program sequence using various symbols. Boxes represent orders or computations. Diamonds represent tests and decisions (branches), much like a family tree.

FMS: File Management System.

FORTH: A high level programming language noted for it's use of reverse polish notation. It lists operators at the end of expressions, uses no parentheses, and is quickly understood by the computer.

FORTRAN: FORmula TRANslator. Early high level language devised for numeric computations. It requires a compiler.

FRICTION FEED: A load path for paper in a printer. Similar to the paper path in a standard typewriter.

FUNCTION KEYS: Dedicated keys that give a program or the computer a direct command.

FULL DUPLEX: A mode of communication. Data may be both sent and received at the same time.

GLITCH: A pulse or a burst of noise. A tiny glitch is called a snivitz. (REALLY!)

GOTO: An instruction (branch out) used by high level languages.

GPIB: General Purpose Interface Bus. The name used for the IEEE 488-1975 bus standard (see IEEE 488).

HALF DUPLEX: A mode of communication. Data may be transmitted in only one direction at a time.

HANDSHAKING: A communication synchronization technique. Two main signals are used — (1)Ready?; (2) yes/no acknowledgement.

HARDCOPY: Printed matter on paper.

HARD DISK: A mass storage device using a rigid disk (aluminum or ceramic) coated with a magnetic coating for recording information.

HARD SECTORED: A disk format where every sector is detected by reading a hole punched in the disk. (in comparison, see SOFT-SECTORED)

HARDWARE: The physical properties of a system.

HASCI: Human Applications Standard Computer Interface.

HDLC: Higher Data Link Control.

HERTZ: A unit of frequency equal to one cycle per second.

HEX: Hexidecimal. Using numbers 0-9, and alpha characters A-F (e.g., 3A=13).

HIGH-LEVEL LANGUAGE (HLL): A programming language with powerful commands. All HLLs require either an interpreter or a compiler.

HIGH RESOLUTION: A quality of a video display where images can be displayed with great detail and accuracy.

HIGH-TECH: High Technology.

IC: Integrated Circuit.

IEEE: Institute of Electrical and Electronic Engineers.

IEEE 488 (see GPIB).

IMPACT PRINTER: A mechanical device that forms characters by striking a ribbon against paper.

INPUT/OUTPUT: The lines or devices used to transmit information between the computer and the outside world.

INSTALL: The process of configuring a software package to run on a particular system.

INSTRUCTION: A single order within a program.

INTEGER MATH: Mathematics software capable of operating only on integer numbers and generating integer results.

INTEGRATED SOFTWARE: Software programs usually included with the purchase price of a micro-computer.

INTELLIGENT CONTROLLER: A device controller equipped with local capabilities such as editing and complex command decoding.

INTERACTIVE: Refers to a computer that has a dialog with the user. Entry by the user prompts a resonse by the computer.

INTERFACE: Hardware/software required to connect a device/system onto another system.

INTERNAL MODEM: A modem card interfaced inside the computer case. (see MODEM)

INTERPRETER: A translation program used to execute commands from a high level

languages. Interpreted languages are slower than compiled ones because they must first be translated before execution.

INTERRUPT: A signal sent from an I/O device or chip to the MPU requesting service (see MPU).

I/O: Input/Output.

I/O PORT: A data channel or connection to external devices.

ISAM: Indexed Sequential Access Method.

ISO: International Standards Organization.

JOYSTICK: A stick, normally vertical, that can be moved and tilted in any direction to indicate movement.

K: (Kilo-)Symbol for 1,000. In computer jargon, a K is 1024.

KB: A kilobyte which is equal to 1024 bytes. (see BYTE)

KEYBOARD: A group of keys on a pad, used to transmit information to the computer.

KEYPAD: A small special purpose keyboard.

KILOBAUD: One thousand bits per second.

KLUDGE: A patch or trick used to fix an error instead of following the proper methods. (see MICKEY MOUSE).

LCD: Liquid Crystal Display. (see LIQUID CRYSTAL)

LETTER QUALITY: Describes printers that produce high-quality printout, much like a typewriter.

LF: Line feed.

LIBRARY: A collection of programs.

LIFO: Last-In-First-Out.

LIGHT PEN: A device that, when placed against the screen of a CRT, can be tracked by the computer.

LINE FEED: A charcter or command that places the cursor one line down or moves the paper one line up.

LINE PRINTER: A high speed printer capable of printing an entire line at once.

LIQUID CRYSTAL: A display method utilizing crystalline properties in a liquid format.

LISTING: A printed representation of a computer program.

LOCUST: A migratory grasshopper that travels in a swarm and usually leaves a trail of devestation behind.

LOOP: A group of instructions that may be executed more than once.

LP: Line Printer.

M: Memory.

MACHINE LANGUAGE: The set of binary codes that represent the memory configurations which can be directly executed by a CPU as instructions.

MACRO-ASSEMBLER: An assembly language program that assembles machine language programs.

MAINFRAME: The main portion of the computer. Usually refers to a very large computer system.

MAIN STORAGE: High speed memory. Usually RAM or ROM.

MASS STORAGE: Secondary slower memory usually in the form of disks.

MASTER OPERATING DISK: The diskette containing all the system files and start-up procedures. Usually in disk drive "A" or "0".

MASTER PROCESSOR: The main processor in a master/slave system.

MATRIX CHARACTER: A character displayed or printed from a matrix of dots.

MBASIC: Microsoft BASIC.

MEGABYTE: 1024 x 1024 bytes, or 1024K.

MEGAHERTZ: A unit of frequency equal to one million Hertz.

MEMORY: A storage area for binary data and programs.

MEMORY MANAGEMENT: The maintenance and responsibilities performed by the computer to keep all memory as efficient as possible.

MEMORY PROTECTION: A mechanism used to prevent accidental writing into a specific area of memory.

MENU: A set of options displayed by a program.

MICROCOMPUTER: A complete small computer system, normally desktop size or smaller.

MICROPROCESSOR: An LSI implementation of a complete processor on a single chip. It is the CPU of the computer. (see LSI & CPU)

MICKEY MOUSE: A small rodent made popular with children by Walt Disney.

MINI COMPUTER: Medium sized, high-powered computer system.

MNEMONIC: A symbolic representation.

MODEM: MOdulator-DEModulator. A device used to interface a digital device to a telephone line.

MOS: Metal Oxide Semiconductor.

MOS RAM: Metal Oxide Semicontuctor Random Access Memory.

MOTHERBOARD: The main circuit board of a computer. The Motherboard has female connectors in which all functional boards (e.g., power supply) are inserted.

MP/M: Multiprogramming Control Program for Microprocessors. A multi-user version of CP/M.

MP/M 86: 16-bit version of MP/M.

MPU: Microprocessor Unit.

MUDPACK: A mixture of dirt and water usually applied to the face. Also used as a term to relay the thought that "you're an idiot!".

MULTIPLEX: To share one resource (such as a hard disk) among several users.

MULTIPROCESSING: Computer systems with more than one processor.

NETWORK: A system of interconnected computers.

NULLS: Zeros. Usually used when defining the characteristics of a compter terminal.

NUMBER CRUNCHING: To perform complex numerical operations.

OBJECT CODE: The output code produced by a translator program.

OEM: Origional Equipment Manufacturer.

OFF-LINE: Disconnected from the computer system, or not in a *ready* status.

ON-LINE: Directly connected to the computer system, in a *ready* status.

OPERATING SYSTEM: The software required to manage the hardware and logical resourses of a system.

OPERATION: A specific defined action.

OPTIMIZATION: Altering hardware or software to increase performance.

OVERSTRIKING: The capability to strike a certain character twice creating a denser darker appearance.

PAGING: In the case of a CRT, switching from one 'page' (full screen) to information to the next page. Also used to switch blocks of memory.

PARALLEL: The processing, transmission, or storage of data such that all of the elements of a compound item (the eight bits in a byte) are handled simultaniously.

PASCAL: A high-level language. Named after the French mathematician and philosopher, Blaise Pascal.

PASSWORD: A unique sequence of alphanumeric characters assigned to the user of a computer system for identification and security purposes.

PATCH: See KLUDGE.

PEEK: A BASIC function which shows the contents of a particular memory location.

PERIPHERAL: Any device connected to a computer which is to some degree controlled by the computer.

PERSONAL COMPUTER: A low-cost computer designed for use by a single individual.

PIO: Programmable Input-Output Chip.

PIXEL: An element of a picture (a dot on a CRT).

POINTER: A placemark in the software for finding specific address locations. Also used in word processing as a placemark.

PORTABLE COMPUTER: A computer system that can be easily transported to another location (see Transportable computer).

POWER-UP: A sequence of steps taken by a computer when power is switched on. The CPU and peripherals are initialized, and the boot load instructions are executed (see BOOT).

PRINTER: A device that produces printed output from the computer. Usually controlled at least in part by the CPU (see Daisy Wheel Printer and Matrix Printer).

PRINTER DRIVER: The software routine that configures the correct codes so a computer and printer understand each other.

PROGRAM: A sequence of user-specified instructions which the computer performs.

PROGRAMMER:

PROGRAMMING LANGUAGE: A language used to write a program which may be assembly level or high-level.

PROPELLER-HEAD:

PROTOCAL: A set of rules governing the exchange of information between two systems or a system and it's peripheral.

QUEUE: A FIFO data structure to which items are added at one end and removed from the other (a series of text files waiting to be printed are in a queue).

QWERTY: The traditional typewriter keyboard layout.

QUIRKS: VALDOCS reference to advanced operating commands and utilities.

RAM: Random Access Memory. It denotes, in fact, Read/Write memory.

RAM-DISK: A block of memory set up for use as if it were a disk drive. Very fast, the RAM-DISK looks just like a regular mass storage device to the operating system.

RANDOM ACCESS: An access method where each word can be retrieved directly by its address, independent of any other word.

READ-ONLY MEMORY: (ROM) Storage which can be written only once. the information is then fixed and cannot be changed. A ROM is programmed by the manufacturer.

READ/WRITE: Describes the nature of the operation, i.e., the direction of data flow.

REAL-TIME: An action or system capable of action at a speed commensurate with the time of occurrence of an actual process.

REAL-TIME OPERATING SYSTEM: An operating system capable of real-time event counters.

RECORD: A unit of information, either read, written or stored, such as a punched card or a line of characters.

RECOVER: To get back data that was "lost".

REFORMAT: To erase and format a disk a second time (or third, forth, etc...)

RESET: To return to zero, or to some arbitrarily selected beginning point.

RESIDENT (SOFTWARE): A program which resides in the main memory of the system. It is convenient to have the editor, the assembler, and the debugger resident in main memory simultaneously.

RESTART: See Reset.

RESTART FILE: A file created in VALDOCS when any of the function keys is pressed (COPYDISK, PRINT, DRAW, Etc...) while working in the editor. Should the system lose power, the restart file will put you at the last position you were at prior to the electrical failure. This feature will also work when shutting the system down and it is desirable to return to the exact spot in your work were you left off.

REVERSE VIDEO: The ability of some CRT terminals to display dark characters on a light background as opposed to the standard on dark.

RF MODULATOR: A device which encodes a composite video signal, as output by many gobbyist microcomputers, into a radio frequency signal for display on a standard television set.

RGB: Red, Green, Blue. Refers to a specific type of color monitor with seperate electrical signals for the three primary colors.

RING COUNT: The number of rings allowed by a modem (with software) before it will answer the phone.

ROLLOVER: Depressing two or more keys on a keyboard controller must include debouncing and multiple-key rollover protection.

ROM: Read-only memory.

ROUTINE: A section of code written to perform a specific action, such as an input character routine, or a square root routine.

RS-232C: The widely used standard for connecting computer system componenents, especially for inter communication of control and data between computers and input/ output peripheral devices. Actually RS-232C is an electrical standard for

commecting data terminal equipment (DCE) such as modems or network data concentrators. See: EIA RS-232C.

RTC: Real Time Clock. A time counter used to measure the duration of an even. It is independent from the processor and not affected by interrupts.

SALELLITE PROCESSOR: A computer subordinate to another computer, possibly communicating over large distances, which performs specialized processing related to the master computer.

SCREEN GENERATOR: A program which aids in the definition of CRT screen forms, which are a particular pattern of symbols on a CRT screen for purposes of data entry and display. Screen forms are oftem displayed in protected fields.

SCREEN SIZE: A measure of the amount of information that a CRT screen can display. Screens may be measured diagonally, as TV sets, or by the number of vertical and horizontal dot or character positions.

SCROLLING: Moving the contents of the CRT screen up or down by one or more lines.

SDLC: Synchronous Data link control. An IBM computer networding protocol.

SECTOR: A contiguous section of a disk track. A block of data on a disk is addressed by its track and sector number. Typical disk sector sizes are 128, 256, or 512 bytes of data. Consecutively numbered sectors may or may not be physically adjacent within a track.

SEQUENTIAL ACCESS: An access method in which items (words or records) may be accessed in a particular record, all becords before it must be scanned first.

SEQUENTIAL FILE: A file whose elements may only be accessed in ascending order. In order to read an element of a sequential file, all of the preceding elements must be accessed.

SERIAL: The processing, transmission, or storage of data such that all of the elements of a compound item, such as the bits in a byte, are handled sequentially. Contrast with: parallel.

SERIAL DATA: Data transmitted sequentially, one bit at a time.

SERIAL PORT: An I/O port through which data is transmitted and received serially. Serial ports are often used for communicating with terminals.

SHELL: The name for the command interpreter running under the UNIX operating system.

SINGLE PRECISION ARITHMETIC: Regular arithmetic, e.g., arithmetic on singleword integers, by contrast to double or multi-precision arithmetic.

SLAVE: Any device under the control of another device, or imitating its operation.

SOFT-SECTORED: A disk format where the beginning of every sector is detected by reading marks on the disk. (in contrast, see HARD-SECTORED)

SOFTWARE: The instructions that tell hardware what to do with data, i.e., the programs.

SOURCE CODE: A program as it is submitted to an assembler or compiler. Is is almost always a file containing ASCII or other characters.

SPREADSHEET: (see ELECTRONIC SPREADSHEET)

SPLIT SCREEN: Division of a CRT screen into two or more seperate areas or windows, in which distinct information is displayed.

STATEMENT: A string of characters which the computer understands.

STEPPER MOTOR: A mechanical device which rotates a fixed amount when pulsed, usually associated with disk drives.

STOP-BIT: A bit indicating the end of serial transmission.

STRING: An ordered sequence of data items, such as characters. For example, the word "string" is a string of six characters.

SUBROUTINE: Subroutines improve program modularity and save memory space at a minimal cost in the overhead required to process the call/return sequence.

SYNCHRONOUS: Operation controlled by a mutually sensed clock pulse.

SYSTEM DISK: A diskette that includes the master operating system (See Master Operating Disk).

SYSTEM: Used informally for "computer system".

TELECOMMUNICATIONS: Communications between more than one computer using telephone lines.

TELETYPE: One of the oldest, most cost-effective and most reliable peripherals for communication with a computer, but with the disadvantage of being slow.

TERMINAL MODE: A mode of operation of a general purpose computer such that its CRT and printer can be used as a terminal for another computer.

TEXT EDITOR: (see EDITOR)

THROUGPUT: The number of instructions executed per second or some other measure of execution efficiency.

TOGGLE: To turn something on or off.

TPA: Transient Program Area

TP/M: Transient Program Monitor. An operating system similar to CP/M, but written specifically for the Z80 series of micro-processor.

TRACK: Refers to the magnetic ring found on disks. Similar in design to a record groove.

TRACTOR-FEED: A method of positioning paper in printers. The edges of the paper have perforations which engage with sprocket wheels in the printers paper transport mechanism.

TRANSPORTABLE COMPUTER: A portable computer that is easily held by the operator and usually is not dependent on wall current for power.

TRI-ZAP III: A standard CP/M eight bit computer system with 2 disk drives and a custom terminal that was never built by anybody. The TRI-ZAPPIANS MANUFACTURING CO. people deny this however. Please remember that there is no such company as TZM Computers (That we know of...)

TTL: Teletype like.

TTY: Teletype.

TURTLEGRAPHICS: A method of creating graphic images on a display or output device by sending commands to a "turtle" (represented by cursor on a screen or a plotter pen, etc.). The turtle can be instructed to simulate the action of drawing with a pen as it moves.

UN-DELETE: To cancel a deletion command after it has been executed.

UNDO-FILE: A duplicate "back-up" file that automatically exists and follows the main text program when using VALDOCS.

UNIX: A mini- and micro-computer oprating system developed by Bell Labs, which features multiprogramming, a heirarchal file structure, and numerous useful utilities.

UPGRADE SOFTWARE: Updated and improved version of a software package.

USART: Universal Synchronous/Asynchronous Receiver/ Transmitter. A chip which handles all the operations associated with synchronous data communicaons, such as bisync.

USED CAR SALESMAN: A person who sells used cars and wants to sell computers the same way. Got his first job selling stereos, then moved on to video before getting into the car game.

UTILITIES: The software used for routine tasks.

VALDOCS: VALuable DOCumentS. An integrated software paackage written by Rising Star Industries.

VAX: A 32-bit minicomputer manufactured by Digital Equipment Corporation. The VAX is capable of executing PDP-11 machine language.

VDT: Video Display Terminal. The newspaper industry uses this term instead of CRT. (see CRT).

VIKS VAPO II: Another in a long line of standard CP/M computers with limited memory and function that was never built and is only a figment of the authors' vivid imagination.

VIDEO SIGNAL: An electronic signal containing information on the location and brightness of each position on a CRT screen, along with timing signals to place the image properly on the screen.

WINCHESTER DISK: A hard disk system chatacterized by very light read/write heads, low head-to-disk clearance, and complete enclosure of the magnetic media in a dust-free environment to achieve high-information density and fast access time.

WORD: A logical unit of information. It may have any number of bits.

WORD PROCESOR: A computer-based software program used for writing, editing, and formatting letters, reports, and books.

WPM: Words Per Minute.

WORD-WRAP: The ability to move a word down to the next line automatically when using a word processing program (see word processing).

WRITE-PROTECT: Describes the act of preventing information from being written onto a storage medium.

X-Y PLOTTER: A device that draws points or lines on a sheet of paper when given x and y coordinates by a computer.

ZAPPLE MONITOR: The resident monitor for TP/M II.

APPENDIX D

MODEM 7 PROGRAM DOCUMENTATION

© 1982 Bruce Ratof, Roger Amidon

These instructions apply to the public domain software package written for CP/M computers. The program should be available through your local computer dealer. If you are having trouble locating the MODEM 7 program, you may write to the following address:

The Barian Company
12021 Wilshire Blvd. Suite 148
Los Angeles, CA 90025

MODEM 7 DOCUMENTATION
By Mark M. Zeiger & James K. Mills
Modified for the Epson QX-10 computer by:
Bruce Ratoff & Roger Amidon
12/27/82

This program uses the file transfer routines written by Ward Christensen in his CP/M file transfer program (Ver. 2.0 as of 08/06/79) and is compatable with his program in single file transfer mode. Multi-file transfers are only possible between two systems running the program described below.

This program has three functions:

1. Communication
2. Program Transfer
3. Modem Control (for the PMMI modem)

COMMUNICATIONS:

The program may emulate a terminal or echo data back to sender (act as a computer).

Terminal Mode — 'T' Option

The Terminal mode may be called with or without a file name. If a file is specified (it should be a new file), then anything received by the modem may be saved in memory and later written to disk. The 'save' feature is toggled ON/OFF by Control-Y. On an IMSAI the front panel LEDs will indicate that memory save is toggled on by showing the binary value of the ASCII character received. For those with no front panel, a colon (:) will be printed at the beginning of each line when memory save is active. The colon will not be transmitted over the modem nor will it be saved in memory.

If a file is not specified, then memory save cannot be activated.

If the memory buffer is full (the buffer is from the top of the program to the bottom of the BDOS), the contents are automatically written to disk (but the file is not yet closed).

Communications may then continue with the buffer reinitialized. The computer with which you are communicating must accept the X-ON and X-OFF (Control-Q and Control-S) conventions or data will be lost.

When communications are over, use Control-E to exit from the Terminal mode and enter the Menu (Command line on the QX-10). The file to which you are writing must then be closed by using the 'WRT' command. If this is not done, all data will be lost. The author decided not to close the file automatically since there will be times when you leave Terminal mode and then decide to re-enter. This may be done while in the menu by using the 'RET' command. You may re-enter Terminal mode and save in the same file as many times as you wish, as long as you have not closed the file with the 'WRT' command.

While in the Terminal mode, Control-T will put you in File Transfer mode. This will allow you to send the contents of an ASCII file over the modem. This routine does no error checking and there are no protocals specified between this program and the receiving computer other than that it should be ready to receive data via the modem. Control-X will cancel the transfer.

Computer mode — 'E' Option

This mode echos data received by other computers. Only one computer may be in this mode at a time. There is no save feature in this mode. Useful if you wish to communicate with somebody running the terminal portion of the program.

File Transfer — 'S' & 'R' Options

These features are the same as in the CP/M Modem program written by Ward Christensen, except that upon completion of the transfer, control returns to the Menu unless the secondary 'T' option has been selected. In the latter case, control returns to Terminal mode. Remember that if you are operating a remote computer using a time-sharing program (such as Ward Christensen's "BYE"), the remote should be instructed to send or receive in the quiet (Q) mode as a secondary option. Examples of commands for sending and receiving are listed below.

Multi-File transfers

Using the B (batch) secondary option, more than one file and ambiguous filenames may be transfered. To send files, use the primary option "S" and the secondary option "B" (along with any other secondary options and baudrate). To receive the files being sent, use the "R" primary option and the "B" secondary option. Files may not be named since filenames are sent by the sending program, but a disk drive may be specified (or else the files are written to the default drive).

Backup option

There is a byte at the beginning of the program (106H) that will create a backup file if a file on the disk has the same name as the file being received in multi-file transfer. If this byte is set to OFFH, a backup file will be created. If it is zero, the file on the disk will be deleted before the new file is received. If you are running CP/M 2.x, and a file on the disk is designated R/O or SYS, a backup will be created whether the byte at 106H is set or not.

Multifile transfers may only be done from the Menu. It may not be specified when the MODEM program is called. In other words, A> MODEM SAB *.COM will result in an INVALID OPTION error message.

Return to Menu — 'M' Option

When asked to select an option, 'M' returns to the Menu.

The MENU

If the Modem program is entered with no option, the Menu is called. The Menu gives a choice of selecting the standard options as defined by Ward Christensen (T, E, R, and S). The Terminal mode has been greatly expanded as described above. The "R" and "S" commands must be called with a filename or you will be required to enter the primary command (S and R) and the filename again (but NOT the secondary options). If you want multi-file transfers, then the "R" option does not need a filename.

RET — You may also enter Terminal mode using the 'RET' command. But no data will be saved since a file cannot be named with 'RET'. Use the 'RET' command to re-enter Terminal mode after it has been entered with the 'T' option. If this is done, you will be able to save the communications if you were doing so before you exited the Terminal mode.

WRT — The 'WRT' command must be used after leaving Terminal mode. This writes the last buffer to disk and closes the file. Failure to use the 'WRT' command results in the loss of all data.

DEL — The 'DEL' command erases the most recent file accessed in Terminal mode. Useful if you decide after communications that you don't want to save information just gathered.

BYE — The 'BYE' command re-boots and returns to the operating system.

EXP - The 'EXP' command is a toggle which causes the menu to be printed or not printed. Initially, the menu is on unless the program is called with the "X" option (i.e. A MODEM X).

DIR — The 'DIR' command lists the directory of a CP/M disk. A drive may be specified or the default drive will be listed. After the directory is listed, the menu will not be printed whether EXP mode is off or on. If EXP mode is on and you wish to see the menu, hit RETURN.

LISTING OF COMMANDS AND OPTIONS:

Primary Options

S — send a CP/M file (must specify file names)
R — receive a CP/M file (must name file unless Bsec opt.)
T — terminal mode
E — terminal mode with echo
M — return to menu
X — used only when program is called to set MENU off

Secondary Options

B — multi-file mode (for sending and receiving)
T — return to Terminal mode after transfer
B — view what is being received in file transfer
S — view what is being sent in file transfer
V — view what is being sent or received in file transfer
T — terminal mode

The following is a listing of Public Domain Computer telephone numbers. Because of the constantly changing number of operating systems, the authors cannot be responsible for the accuracy of the P.A.M.S.'s listing.

PUBLIC ACCESS MESSAGE (and file transfer) SYSTEMS
(P.A.M.S.) last updated 08/20/83

User Codes:

*24 denotes 24-hour operation
#1 denotes original system of that type
—rb denotes call, let ring once and call back
—nc never call this system
—fs fantasy system...does not exist
! new system or new number to existing system
$ Supports VADIC 1200 baud operation
& Supports 212A 1200 baud operation
% Supports BAUDOT operation

QX-10 Bulletin Board, Los Angeles, CA ..... (6pm - 9am, PST) (213) 474-4952
ABBS AGS, Atlanta, GA ..... (404) 733 3461*24
ABBS AIMS, Oak Brook IL ..... (312) 789 0499*24
ABBS Akron Digital Group, Akron, OH ..... (216) 745 7855*24
ABBS Apple Cider, Las Vegas, NV ..... (702) 454 3417
ABBS Apple Crate I, Seattle, WA ..... (206) 935 9119
ABBS Apple Crate II, Seattle, WA ..... (206) 244-5438
ABBS Apple Group N.J., Piscataway, NJ ..... (201) 968 1074
ABBS Apple-Med, Iowa City, IA ..... (319) 353 6528
ABBS Apple—Mate, New York, NY ..... (201) 864 5345
ABBS Baileys Computer Store, Augusta, GA ..... (404) 790 8614
ABBS Baton Rouge, LA ..... (504) 291 1360
ABBS Byte Shop, Ft. Lauderdale, FL ..... (305) 486 2983
ABBS Byte Shop, Miami, FL ..... (305) 261 3639
ABBS Calvary Mission Church, Minneapolis, MN ..... !(612) 471-0252
ABBS CCNJ, Pompton Plains, NJ ..... (201) 835-7228
ABBS Century Next Computers, St. Louis, MO ..... (314) 442-6502
ABBS Charlotte, NC ..... !(704) 364-5254
ABBS Cleveland, OH ..... (216) 779-1338
ABBS CODE, Glen Ellyn IL ..... (312) 537-7063*24
ABBS Colortron Computer, WI ..... (414) 637-9990*24
ABBS Compumart, Ottawa, Ontario, Canada ..... (613) 725-2243
ABBS Computerland, Fremont, CA ..... (415) 794-9314
ABBS Computer Corner, Amarillo, TX ..... (806) 355-5610
ABBS Computer Conspiracy, Santa Monica, CA ..... (213) 829-1140
ABBS Computer Crossroads, Columbia, MD ..... (301) 730-0922
ABBS Computer Lab, Memphis, TN ..... (901) 761-4743
ABBS Computer Room, Kalamazoo, MI ..... (616) 382-0101
ABBS Computer Store, Toledo, OH ..... (419) 531-3845
ABBS Dallas Info Board ..... (214) 248-4539
ABBS Denver, CO ..... (303) 759-2625

ABBS Detroit, MI ..... (313) 477-4471
ABBS Downers Grove, IL ..... (312) 964-7768
ABBS Electro—Mart, Spokane, WA ..... (509) 534-2419*24
ABBS Fort Walton Beach, Destin, FL ..... (904) 243-1257
ABBS Gamemaster, Chicago, IL ..... (312) 475-4884*24
ABBS Hayward, CA ..... (415) 881-5662
ABBS Illini Microcomputer, Naperville, IL ..... (312) 420-7995
ABBS Ketchikan, AK ..... (907) 225-6789
ABBS Louisville, KY ..... (502) 245-7811*24
ABBS Madam Bokeatha Society, Houston, TX ..... (713) 455-9502
ABBS Memphis, TN ..... (901) 725-5691
ABBS Michigan Apple—Fone, Southfield, MI ..... (313) 357-1422
ABBS Newport Beach, CA ..... !(714) 645-5256*24
ABBS Oak Brook Computer, Oak Brook, IL ..... (312) 941-9009
ABBS Omaha, NE ..... (402) 339-7809
ABBS PCnet, San Francisco, CA ..... (415) 863-4703*24
ABBS Pacific Palasades, Los Angeles, CA ..... (213) 459-6400
ABBS Peoria, IL ..... (309) 692-6502
ABBS Phoenix, AZ ..... (602) 898-0891
ABBS Pirates Cove, Long Island, NY ..... (516) 698-4008
ABBS Rogers Park, Chicago, IL ..... (312) 973-2227
ABBS Saddlebrook, NJ ..... (201) 843-4563
ABBS San Antonio, TX ..... (512) 737-0214*24
ABBS Software Sorcery, Herndon, VA ..... !(703) 471-0610
ABBS Spokane, WA ..... (509) 456-8900
ABBS St. Louis, MO ..... (314) 838-7784*24
ABBS Teledunjon I, Dallas, TX ..... (817) 469-1626
ABBS Teledunjon II, Dallas, TX ..... (214) 530-0858
ABBS Teledunjon III, Dallas, TX ..... (214) 960-7654
ABBS The Moon, Dallas, TX ..... (214) 931-3437*24
ABBS Turnersville, NJ ..... (609) 228-1149
ABBS Vancouver, B.C ..... (604) 437-7001
ABBS Vermont, Essex Junction, VT ..... (802) 879-4981*24
ABBS VIBBS, Nashua, NH ..... (603) 888-6648
ABBS West Palm Beach, FL ..... (305) 848-3802
ABBS Rob Roy Computer, Yakima, WA ..... (509) 575-7704
ABBS Youngs Elect Svc., College Station, TX ..... (713) 693-3462*24
ABBS #X, Atlanta, GA ..... (404) 256-1549
A-C-C-E-S-S Annapolis, MD ..... (301) 267-7666*24
A-C-C-E-S-S Olympia, WA ..... (206) 866-9043*24
A-C-C-E-S-S Phoenix, AZ ..... #1 (602) 996-9709*24
A-C-C-E-S-S Phoenix, AZ ..... & (602) 957-4428*24
A-C-C-E-S-S Phoenix, AZ ..... (602) 274-5964
A-C-C-E-S-S Scotsdale, AZ ..... (602) 998-9411*24
A-C-C-E-S-S Wyckoff, NJ ..... (201) 891-7441*24
AMIS A.R.C.A.D.E. Sterling Heights, MI ..... (313) 978-8087*24
AMIS Chicago, IL ..... (312) 789-3610*24
AMIS GRAFEX Cupertino, CA ..... (408) 253-5216
AMIS G.R.A.S.S. Grand Rapids, MI ..... (616) 241-1971*24

AMIS IBBBS San Jose, CA ..... (408) 298-6930
AMIS M.A.C.E. Detroit, MI ..... #1 (313) 868-2064*24
AMIS Magic Lantern, Madison, WI ..... (608) 251-8538
AMIS Starbase 12 Philadelphia, PA ..... (617) 876-4885
AMIS T.A.B.B.S. Sunnyvale, CA ..... (408) 942-6975

ARMUDIC Washington, DC ..... #1 (202) 276-8342
ARMUDIC Computer Age, Baltimore, MD ..... (301) 587-2132

BBS Annandale, VA ..... (703) 978-9754
BBS B.R., Los Angeles, CA ..... (213) 394-5950*24
BBS Computer Applications Co., Poland, OH ..... (216) 757-3711
BBS Electronic Exchange, Chicago, IL ..... (312) 541-6470*24
BBS Homestead, FL ..... (305) 246-1111
BBS IBM PC Billings, MT ..... (406) 656-9624
BBS IBM PCUG Annandale, VA ..... (703) 560-0979
BBS Living Videotext, Menlo Park, CA ..... (415) 327-8876*24
BBS Pensacola, FL ..... (904) 477-8783
BBS SUE Milwaukee, WI ..... (414) 483-4578
BBS—80 Cincinnati, OH ..... (513) 244-2983
BBS-80 DALTRUG, Dallas, TX ..... (214) 235-8784 *

BULLET-80 Akron, OH ..... (216) 645-0827*24
BULLET-80 Boston, MA ..... &(617) 266-7789*24
BULLET-80 Chesterland, OH ..... (216) 729-2769
BULLET-80 Clarks Summit, PA ..... (717) 586-2112
BULLET-80 Danbury, CT ..... #1(203) 744-4644
BULLET-80 Fayetteville, GA ..... (404) 461-9686
BULLET-80 Hawkins, TX ..... (214) 769-3036
BULLET-80 Houston, TX ..... (713) 331-2599
BULLET-80 Ironton, OH ..... (614) 532-6920
BULLET-80 Lancaster, CA ..... (805) 947-9925
BULLET-80 Langhorne, PA ..... (215) 364-2180
BULLET-80 Littlefield, TX ..... (806) 385-6843
BULLET-80 Mt. Clemens, MI ..... (313) 465-9531
BULLET-80 Orange County, Anaheim, CA ..... (714) 952-2110
BULLET-80 Redwood City, CA ..... (415) 367-1339*24
BULLET-80 Riverside, CA ..... (714) 359-3189
BULLET-80 San Jose, CA ..... (408) 241-0769
BULLET-80 Seymour, CT ..... (203) 888-7952
BULLET-80 Springfield, IL ..... (217) 529-1113
BULLET-80 Tulsa, OK ..... (918) 749-0059*24
BULLET-80 Tyler, TX ..... (214) 595-4217

CBBS AMRAD, Washington, DC ..... (703) 734-1387*24
CBBS Atlanta, GA ..... (404) 394-4220*24
CBBS Baton Rouge, LA ..... (504) 273-3116*24
CBBS Bloomington, IN ..... (812) 334-2522
CBBS Boston, MA ..... (617) 646-3610*24
CBBS Cedar Rapids, IA ..... (319) 364-0811
CBBS Chicago, IL ..... #1 (312) 545-8086*24
CBBS Corpus Christi, TX ..... (512) 855-1512

CBBS CPEUG/ICST Gaithersburg, MD ..... (301) 948-5717
CBBS Lawrence General Hospital, Boston, MA ..... (617) 683-2119
CBBS LICA LIMBS, Long Island, NY ..... (516) 561-6590*24
CBBS London, England.(European standard) ..... (044) 1 399-2136
CBBS Long Island, NY ..... (516) 334-3134*24
CBBS MAUDE Milwaukee, WI ..... (414) 241-8364*24
CBBS NW, Portland, OR ..... (503) 646-5510*24
CBBS PACC, Pittsburgh, PA ..... (412) 822-7176*24
CBBS Prince George, B.C., Canada ..... (604) 562-9515
CBBS Proxima, Berkeley, CA ..... (415) 357-1130
CBBS RAMS, Rochester, NY ..... (716) 244-9531
CBBS Richfield, MN ..... (612) 869-5780
CBBS TSG, Tucson, AZ ..... (602) 746-3956*24
CBBS Vancouver, BC, Canada ..... (604) 687-2640*24
CBBS Waco, TX ..... (817) 776-1375

COMM-80 OCTUG ..... (714) 530-8226
COMM-80 Orange County, Fullerton, CA ..... (714) 530-8226
COMM-80 Queens, NY ..... (212) 897-3392*24

CONNECTION-80 Centereach, NY ..... (516) 588-5836
CONNECTION-80 Denver, CO ..... (303) 690-4566*24
CONNECTION-80 Escondido, CA ..... !(714) 746-6265
CONNECTION-80 Fremont, CA ..... (415) 651-4147*24
CONNECTION-80 Gaithersburg, MD ..... (301) 840-8588*24
CONNECTION-80 Great Neck, NY ..... (516) 482-8491*24
CONNECTION-80 Lansing, MI ..... (517) 339-3367
CONNECTION-80 Little Rock, AS ..... (501) 372-0576
CONNECTION-80 Manhattan, NY ..... (212) 991-1664
CONNECTION-80 Orlando, FL ..... (305) 644-8327*24
CONNECTION-80 PAUG, Portland, OR ..... (503) 281-7653
CONNECTION-80 Peterborough, NH ..... (603) 924-7920
CONNECTION-80 Tulsa, OK ..... (918) 747-1310*24
CONNECTION-80 W. Mich. Micro Group, MI ..... (616) 457-1840*24
CONNECTION-80 Winter Garden, FL ..... (305) 877-2829*24
CONNECTION-80 Woodhaven, NY ..... (212) 441-3755*24
CONNECTION-80 Tampa, FL ..... (813) 977-0989

CONFERENCE-TREE #2, San Francisco, CA ..... (415) 928-0641
CONFERENCE-TREE #3, Hayward, CA ..... (415) 538-3580
CONFERENCE-TREE #4, Santa Monica, CA ..... (213) 394-1505
CONFERENCE-TREE Anchorage, AK ..... (907) 344-5251
CONFERENCE-TREE Flagship, Denville, NJ ..... (201) 627-5151*24
CONFERENCE-TREE Kelp Bed, Los Angeles, CA ..... (213) 372-4800
CONFERENCE-TREE Minneapolis, MN ..... (612) 227-0307
CONFERENCE-TREE Victoria, TX ..... (512) 578-5833

FORUM-80 Augusta, GA ..... (803) 279-5392
FORUM-80 Charleston, SC ..... (803) 552-1612*24
FORUM-80 Cleveland, OH ..... &(216) 486-4176
FORUM-80 #1, Denver, CO ..... (303) 341-0636*24
FORUM-80 #2, Denver, CO ..... (303) 399-8858*24

FORUM-80 El Paso, TX ..... (915) 755-1000*24
FORUM-80 Ft. Lauderdale, FL ..... (305) 772-4444*24
FORUM-80 Hull, England ..... (011) 44 482-859169
FORUM-80 Kansas City, MO ..... #1 &(816) 861-7040*24
FORUM-80 Kansas City, MO ..... &(816) 931-9316
FORUM-80 Las Vegas, NV ..... (702) 362-3609*24
FORUM-80 Linden, NJ ..... (201) 486-2956*24
FORUM-80 Medford, OR ..... (503) 535-6883*24
FORUM-80 Medical, Memphis, TN ..... (901) 276-8196*24
FORUM-80 Monmouth, Brielle, NJ ..... (201) 528-6623*24
FORUM-80 Montgomery, AL ..... (205) 272-5069
FORUM-80 Nashua, NH ..... (603) 882-5041
FORUM-80 Orange County, Anaheim, CA ..... (714) 545-9549
FORUM-80 Pontiac, MI ..... (313) 335-8456
FORUM-80 Prince William County, VA ..... (703) 670-5881*24
FORUM-80 San Antonio, TX ..... (512) 340-6720
FORUM-80 Seattle, WA ..... (206) 723-3282
FORUM-80 Sierra Vista, AZ ..... (602) 458-3850*24
FORUM-80 Shreveport, LA ..... (318) 631-7107*24
FORUM-80 Westford, MA ..... (617) 692-3973
FORUM-80 Wichita, KA ..... &(316) 682-2113*24
FORUM-80 Wichita Falls, TX ..... (817) 855-3916

HBBS Denver, CO ..... (303) 343-8401*24
HBBS El Paso, TX ..... (915) 592-1910
HBBS Oklahoma City, OK ..... (405) 848 9329*24
HBBS San Fernando Valley ..... (213) 366 4837

MCMS C.A.M.S. Chicago, IL ..... #1 (312) 927-1020*24
MCMS J.A.M.S. Lockport, IL ..... (815) 838-1020*24
MCMS L.A.M.S. Round Lake, IL ..... (312) 740-9128
MCMS Message-82, Chicago, IL ..... (312) 622-4442*24
MCMS Metro West Database, Chicago, IL ..... (312) 260-0640*24
MCMS NC Software, Minneapolis, MN ..... (612) 533-1957*24
MCMS WACO Hot Line, Schaumburg, IL ..... pvt (312) 351-4374*24

MICRO-COM Computer City, Weston, CT ..... (203) 227-1829

MOUSE-NET Nashua, NH ..... (603) 673-9476*24
MOUSE-NET Orlando, FL ..... (305) 277-0473*24

MSG-80 Everett, WA ..... (206) 334-7394

NESSY Chicago, IL ..... #1 (312) 773-3308
NESSY Terry and Gwen's, Palatine, IL ..... (312) 289-6393

NET-WORKS Apple Grove, Dallas, TX ..... (214) 644-5197
NET-WORKS Apple Shack, Dallas, TX ..... (214) 644-4781*24
NET-WORKS Armadillo, Grand Fork, ND ..... (701) 746-4959
NET-WORKS Aurora, CO ..... (303) 343-8401*24
NET-WORKS Big Apple, Miami, FL ..... (305) 948-8000
NET-WORKS C.A.M.S., Decatur, IL ..... (217) 429-5541
NET-WORKS CLAH, Arlington Heights, IL ..... (312) 255-6489
NET-WORKS Coin Games, Los Angeles, CA ..... (213) 336-5535

NET-WORKS COMM Center NW3NAGAD, Laurel, MD ..... (301) 953-1110
NET-WORKS Computer City, Providence, RI ..... (401) 331 8450*24
NET-WORKS Computer Emporium, Des Moines, IA ..... (515) 279-8863
NET-WORKS Computer Emporium, San Jose, CA ..... (408) 227-0227
NET-WORKS Computer Pro, Ft. Worth, TX ..... (817) 732-1787
NET-WORKS Computer Station, St. Louis, MO ..... (314) 432-7120
NET-WORKS Computer World, Los Angeles, CA ..... (213) 859-0894*24
NET-WORKS Crescent City, Baton Rouge, LA ..... (504) 454-6688
NET-WORKS Dallas, TX ..... (214) 361-1386*24
NET-WORKS Dayton, OH ..... (513) 223-3672
NET-WORKS Eclectic Computer Sys., Dallas, TX ..... (214) 239-5842
NET-WORKS Encino, CA ..... (213) 345-3670
NET-WORKS Granite City, IL ..... (618) 877-2904
NET-WORKS Greenfield, IN ..... (317) 326-3833*24
NET-WORKS Hacker-net, Dallas, TX ..... (214) 824-7160
NET-WORKS Hawaii ..... (808) 521-7312
NET-WORKS Info-Net, Costa Mesa, CA ..... (714) 545-7359
NET-WORKS MAGIE, Galesburg, IL ..... (309) 342-7178
NET-WORKS Magnetic Fantasies, Los Angeles, CA ..... (213)-388 5198
NET-WORKS Montreal, Canada ..... (514) 937-2188*24
NET-WORKS Pirate's Harbor, Boston, MA ..... (617) 738-5051
NET-WORKS Pirate's Inn ..... (213) 454-3075
NET-WORKS Pirate's Nest, Weston, CT ..... (203) 227-1829
NET-WORKS Pirate's Ship, Chicago, IL ..... (312) 935-2933*24
NET-WORKS Portsmouth, NH ..... (603) 436-3461
NET-WORKS Softworx, West Los Angeles, CA ..... (213) 473-2754
NET-WORKS Sparklin' City, Corpus Christi, TX ..... (512) 882-6569
NET-WORKS St. Louis, MO ..... (314) 781-1308
NET-WORKS Warlock's Castle St. Louis, MO ..... (618) 345-6638
NET-WORKS Winesap, Dallas, TX ..... (214) 824-7455

ONLINE San Diego, CA ..... (714) 452-6012
ONLINE Houston, TX ..... (713) 528-7025*24
ONLINE Dickinsons Movie Guide, Mission, KS ..... (913) 432-5544
ONLINE Indianapolis, IN ..... ID#=GUES, pswd=pass ..... (317) 787-9881*24
ONLINE ON-LINE Computer Center, KC, MO ..... (913) 341-7987
ONLINE Saba, San Diego, CA ..... !(714) 291-5229
ONLINE Santee, CA ..... ID#=GUEST, pswd=PASS ..... (714) 561-7271*24

PASBBS Bellflower, CA ..... (213) 531-1057
PASBBS Torrance, CA ..... #1 (213) 516-7089*24

PBBS Co-operative Comp Svc, Palatine, IL ..... (312) 359-9450*24

PET BBS S.E.W.P.U.G., Racine, WI ..... (414) 554-9520*24
PET BBS Commodore Comm., Lake St. Louis, MO ..... !(314) 625-4576*24

PMS — **IF**, Anaheim, CA ..... (714) 772-8868*24
PMS — Anchorage, AK ..... (907) 344-8558
PMS — Apple Bits, Kansas City, MO ..... (913) 341-3502*24
PMS — Apple Guild, Weymouth, MA ..... (617) 767-1303*24
PMS — **IF**, Anaheim, CA ..... (714) 772 8868*24
PMS — Anchorage, AK ..... (907) 344 8558

PMS — Apple Bits, Kansas City, MO ..... (913) 341 3502*24
PMS — Apple Guild, Weymouth, MA ..... (617) 767 1303*24
PMS — Arlington Heights, IL ..... (312) 870 7176*24
PMS — Baltimore, MD ..... (301) 764 1995*24
PMS — Campbell, CA ..... (408) 370 0873*24
PMS — Century 23, Las Vegas, NV ..... !(702) 878 9106*24
PMS — Chicago, IL ..... (312) 373 8057*24
PMS — Cincinnati, OH ..... (513) 671 2753
PMS — Computer City, Danvers, MA ..... (617) 774 7516
PMS — Ellicott City, MD ..... (301) 465 3176
PMS — Escondido, CA ..... (714) 746 0667
PMS — Ft. Smith Computer Club, Ft. Smith, AK ..... !(501) 646 0197
PMS — Gulfcoast, Freeport, TX ..... (713) 233 7943*24
PMS — Indianapolis, IN ..... (317) 787 5486*24
PMS — Lakeside, CA. (type PMS to activate) .....(714) 561 7271*24
PMS — Los Angeles, CA ..... (213) 334 7614*24
PMS — Massillon, OH ..... (216) 832 8392*24
PMS — McGraw-Hill Books, New York, NY ..... (212) 997 2488
PMS — Mesa Systems, San Diego, CA ..... !(714) 271 8613
PMS — Minneapolis, MN ..... (612) 929 6699*24
PMS — Mission Valley, CA ..... (714) 295 8280
PMS — I.A.C., Lake Forest, IL ..... (312) 295 6926*24
PMS — O.A.C., Woodland Hills, CA ..... (213) 346 1849*24
PMS — Pikesville, MD ..... (301) 653 3413
PMS — Pleasanton, CA ..... (415) 462 7419*24
PMS — Portola Valley, CA ..... (415) 851 3453*24
PMS — RAUG, Akron, OH ..... (216) 867 7463*24
PMS — Richland, WA ..... (509) 943 6502*24
PMS — Rutgers Univ. Microlab, Piscataway, NJ. ..... (201) 932 3887
PMS — San Diego, CA ..... (714) 582 9557*24
PMS — Santa Clara, CA ..... (408) 554 9036
PMS — Santa Cruz, Aptos, CA ..... (408) 688 9629*24
PMS — Santee, CA ..... #1 (714) 561 7277*24
PMS — Shrewsbury, NJ ..... (201) 747 6768
PMS — Software Unltd, Kenmore, WA ..... (206) 486 2368*24
PMS — Your Computer Connection, KS Cty, MO ..... (913) 381 1021

PSBBS Baltimore, MD ..... (301) 994 0399*24
PSBBS Washington, DC ..... (202) 337 4694*24

RATS Systems ..... #1 (201) 887 8874
RATS Pequannock, NJ ..... (201) 696 8647
RATS Little Falls, NJ ..... (201) 785 3565
RATS Homewood, IL ..... (312) 957 3924
RATS Wenonah, NJ ..... (609) 468 5293
RATS Wenonah, NJ #2 ..... (609) 468 3844

RBBS Big Top, Milwaukee, WI ..... (414) 259 9475

RCP/M AABB New York, NY ..... (212) 787 5520
RCP/M AIMS Hinsdale, IL ..... !(312) 789 0499
RCP/M Arlington, VA ..... !(703) 536 3769

RCP/M CBBS ANAHUG, Anaheim, CA ..... (714) 774 7860
RCP/M CBBS CP/M Net Simi Valley, CA ..... (805) 527 9321
RCP/M CBBS Columbus, OH ..... (614) 272 2227*24
RCP/M CBBS Frog Hollow, Vancouver, BC, CN ..... !(604) 873 4007*24
RCP/M CBBS HUG, Chicago, IL ..... (312) 671 4992*24
RCP/M CBBS Pasadena, CA ..... (213) 799 1632*24
RCP/M CBBS RLP, MacLean, VA ..... !(703) 524 2549*24
RCP/M CBBS Sacramento, CA ..... !(916) 483 8718*24
RCP/M CBBS Vancouver, BC, Canada ..... (604) 687 2640*24
RCP/M Chuck Forsberg, OR ..... !(503) 621 3193
RCP/M Collossal Oxgate, ?? ..... !(408) 263 2588
RCP/M CUG-NOTE, Denver, CO ..... !(303) 781 4937*24
RCP/M CUG-NODE, PA State College ..... !(814) 238 4857*24
RCP/M Geneseo, IL ..... !(309) 944 5455
RCP/M HAPN Hamilton, Ontario, CN ..... !(416) 335 6620*24
RCP/M IBM-PC, Niles, IL ..... &!(312) 647 7636*24
RCP/M Logan Square, Chicago, IL ..... (312) 252 2136
RCP/M MCBBS Ken Stritzel, Flanders, NJ ..... !(201) 584 9227*24
RCP/M MCBBS Superbrain, Lexington, MA ..... $&(617) 862 0781*24
RCP/M MCBBS TCBBS Dearborn, MI ..... (313) 846 6127*24
RCP/M Mississauga, Toronto, Ontario, CN ..... $&(416) 826 5394*24
RCP/M Mississauga HUG, Toronto, Ontario, CN ..... $&(416) 826 5394*24
RCP/M NEI, Chicago, IL ..... (312) 949 6189
RCP/M Palatine, IL ..... &(312) 359 2553*24
RCP/M Piconet Oxgate, ?? ..... (415) 965 4097*24
RCP/M RBBS Allentown, PA ..... (215) 398 3937*24
RCP/M RBBS ANAHUG, Anaheim, CA ..... (714) 774 7860*24
RCP/M RBBS Arvada Elect., Colorado Springs,CO ..... (303) 634 1158*24
RCP/M RBBS Boulder, CO ..... (303) 499 9169
RCP/M RBBS Bethesda, MD ..... !(301) 229 3196
RCP/M RBBS Comp. Tech. Assoc., El Paso, TX ..... !(915) 533 2202*24
RCP/M RBBS Computerized Services, Tampa, FL ..... (813) 839 6746
RCP/M RBBS Computron, Edmonton, Alberta, Can. ..... (403) 482 6854*24
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RCP/M RBBS DataTech, San Carlos, CA ..... (415) 595 0541
RCP/M RBBS Edmonton, Alberta, Canada ..... (403) 454 6093*24
RCP/M RBBS El Paso, TX ..... (915) 598 1668
RCP/M RBBS Fort Mill, SC ..... (803) 548 0900*24
RCP/M RBBS GFRN Dta Exch., Garden Grove, CA ..... $&(714) 534 1547*24
RCP/M RBBS GFRN Dta Exch., Palos Verdes, CA ..... $&(213) 541 2503*24
RCP/M RBBS Grafton, VA ..... !(804) 898 7493
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RCP/M RBBS Laurel, MD ..... !(301) 953 3753*24
RCP/M RBBS Larkspur, CA ..... (415) 461 7726*24
RCP/M RBBS Marin County, CA ..... !(415) 383 0473*24
RCP/M RBBS MUG, Mission, KS ..... &(913) 362 9583*24
RCP/M RBBS Napa Valley, CA ..... (707) 253 1523
RCP/M RBBS New York, NY ..... (516) 791 1767
RCP/M RBBS Ocean, NJ ..... &(201) 775 8705

RCP/M RBBS San Jose Oxgate, San Jose, CA ..... !(408) 287 5901*24
RCP/M RBBS Pontiac, MI ..... !(313) 338 85-5
RCP/M RBBS Paul Bogdanovich, NJ ..... !(201) 747 7301
RCP/M RBBS Rochester, NY ..... (716) 223 1100*24
RCP/M RBBS Rutgers, New Brunswick, NJ ..... (201) 932 3879*24
RCP/M RBBS San Diego, CA ..... $&!(714) 273 4354*24
RCP/M RBBS Sofwaire Store, Los Angeles, CA ..... (213) 479 3189*24
RCP/M RBBS Southfield, MI ..... (313) 559 5326*24
RCP/M RBBS Thousand Oaks, CA ..... (805) 496 9522*24
RCP/M RBBS Woodstock, NY ..... !(914) 679 8734
RCP/M Silicon Valley, CA ..... !(408) 246 5014*24
RCP/M SJBBS Johnson City, NY ..... (607) 797 6416
RCP/M TRS-80 Chicago, IL ..... (312) 949 6189
RCP/M Terry O'Brien, Vancouver, BC, Canada ..... (604) 584 2543

Remote Northstar Atlanta, GA ..... #1 (404) 926 4318*24
Remote Northstar Denver, CO ..... (303) 444 7231
Remote Northstar Largo, FL ..... (813) 535 9341*24
Remote Northstar NASA, Greenbelt, MD ..... (301) 344 9156
Remote Northstar Santa Barbara, CA ..... (805) 682 7876
Remote Northstar Santa Barbara, CA ..... (805) 964 4115
Remote Northstar Virginia Beach, VA ..... (804) 340 5246

ST80-CC Lance Micklus, Inc., Burlington, VT#1 ..... (802) 862 7023*24
ST80-PBB Monroe Camera Shop, Monroe, NY ..... (914) 782 7605

TCBBS B.A.M.S. New York, NY ..... (212) 362 1040*24
TCBBS Leigh's Computer World, NY ..... (212) 879 7698
TCBBS W.E.B.B. New York, NY ..... #1(212) 799 4649

TRADE-80 Ft. Lauderdale, FL ..... #1 (305) 525 1192
TRADE-80 Omaha, NE ..... (402) 292 6184
TRADE-80 Erie, PA ..... (814) 898 2952*24

MISCELLANEOUS OR UNKNOWN SYSTEM TYPES

Adventure BBS ..... (516) 621 9296
Alpha, Tampa, FL. acct#=ABCD00, pwd=TRYIT ..... (813) 251 4095*24
Apollo's Chariot, Apollo, FL ..... (813) 645 3669
ARBB Seattle, WA ..... (206) 546 6239
Aviators Bulletin Board, Sacramento, CA ..... (916) 393 4459
Baton Rouge Data System, Baton Rouge, LA ..... (504) 926 0181
Boston Information Exchange, Boston, MA ..... &(617) 423 6985*24
BR's BBS Santa Monica, CA ..... (213) 394 5950
Bradley Computer BBS ..... (813) 734 7103
BSBB Tampa, FL ..... (813) 885 6187
Capital City BBS, Albany, NY ..... (518) 346 3596*24
Carrier 2 Alexandria, VA ..... (703) 823 5210
C-HUG Bulletin Board, Fairfax, VA ..... (703) 360 3812*24
Compusystems, Columbia, SC ..... (803) 771 0922
Computer Arts Message System, Newhall, CA ..... (805) 255 6445
Computer Conspiracy ..... (213) 829 1140
Corsair, Goldcoast, FL ..... (305) 968 8653
CoxCo, Arvada, CO ..... (303) 423 5001*24
Databoard BBS, Atherton, CA ..... !(415) 367 7638*24
Dimension-80 Orange, CA ..... (714) 974 9788
Electric Line Connection, Sherman Oaks, CA ..... (213) 789 9512
Experimental-80 Kansas City, MO ..... (913) 676 3613
FBBS Skokie, IL ..... #1 (312) 677 8514
Hermes-80 Allentown, PA ..... (215) 434 3998
IAC Message Base, Menlo Park, CA ..... (415) 367 1339*24
INFO-NET Foster City, CA ..... (415) 349 3126
INFOEX-80 West Palm Beach, FL ..... (305) 683 6044*24
JCTS Redmond, WA ..... (206) 883 0403*24
Kluge Computer Whittier, CA ..... $&(213) 947 8128*24
L.A. Interchange, Los Angeles, CA ..... (213) 631 3186*24
Lehigh Press BB, PA ..... #1 (215) 435 3388
Long Beach Community Computer ..... (213) 591 7239*24
Mail Board-82 Seattle, WA ..... (206) 527 0897*24
Market 80, Kansas City, MO ..... (816) 931 9316
MARS/RP Rogers Park, IL ..... (312) 743 8176*24
Micro-80 West Palm Beach, FL ..... (305) 686 3695
Micro Informer ..... (813) 884 1506
Mini-Bin Seattle, WA ..... (206) 762 5141*24
NBBS Norfolk, VA ..... !(804) 444 3392
New England Comp. Soc., Maynard, MA ..... (617) 897 0346
New Jersey TELECOM ..... #1 (201) 635 0705*24
NMS Natick, MA ..... (617) 653 4282*24
North Largo, FL ..... (813) 535 9341*24
North Orange County Computer Club ..... (714) 633 5240
Novation CO., Los Angeles, CA 'pass=CAT ..... (213) 881 6880
Nybbles-80 Elmsford, NY ..... (914) 592 5385

OARCS Portland, Oregon ..... (503) 641 2798
ORACLE Classified System, Austin, TX ..... (512) 346 4495
Orange County Data Exchange, Garden Grove, CA ..... (714) 537 7913
Personal Message System-80, Deerfield Bch, FL ..... (305) 427 6300*24
PHOTO-80, Haledon, NJ ..... (201) 790 6795
Potomac Micro Magic Inc., Falls Church, VA ..... (703) 379 0303*24
Remote Apple Jackson, MS ..... (601) 992 1918*24
SATUG BBS, San Antonio, TX ..... !(512) 494 0285
Scanboard-80, Atlanta, GA ..... (404) 457 8384
Seacomm-80 Seattle, WA ..... (206) 763 8879*24
SIGNON Reno, NV pswd=FREE ..... (702) 826 7234
SISTER Staten Island, NY ..... (212) 442 3874*24
SLAMS St. Louis, MO ..... (314) 839 4307
SMBBS New York, NY ..... (212) 884 5408
Sunrise Omega-80, Oakland, CA ..... (415) 452 0350
Talk-80 ROBB, Portsmouth, VA ..... (804) 484 9636
TCUG BBS, Washington, DC ..... (703) 451 8475*24
Telcom 7 New Fairfield, CT ..... (203) 746 5763*24
Telemessage-80, Atlanta, GA ..... (404) 962 0616
Westside Download, Detroit, MI ..... (313) 533 0254
XBBS Hamilton, OH ..... (513) 863 7681*24
ZBBS Minneapolis, MN ..... (612) 426 9028

APPENDIX E

WHY THE QX-10?

What sets the QX-10 apart from other computers? What about I.B.M., Apple, DEC, Xerox, and other micros? Is the QX-10 able to compete with these industry leaders?

When comparing the QX-10 to the other leading microcomputers, the Epson stands unmatched. All microcomputers have their own unique features that make them attractive to suit certain purposes. Some computers have more than one processor, some come with a monitor, some come virtually void of the very basics, like the operating system software. Then there is the QX-10. Complete. Ready to go to work as soon as you are. You don't have to go buy software. You don't have to go buy a monitor. You just go to work.

The most important aspect of the QX-10 is it's ability to combine ease-of-use with effective, productive computing. The Epson was the first computer to integrate hardware and software. In fact, the HASCI keyboard was developed around the VALDOCS system.

Here is a comparison of the Epson QX-10 against three of the top selling micro-computers with the basic configuration. The retail pricing is subject to change without notice, as are all specifications and inclusions.

	EPSON QX-10	IBM PC	APPLE IIe	NEC 88000
Microprocessor	**Z80A**	**8088**	**6502**	**Z80A**
Co-processor	N/inc.	8087	N/inc.	8086
Graphics processor	NEC7220	opt.	none	N/A
Standard RAM	256K	64K	64K	64K
Video RAM	128K	opt.	none	none
Expansion slots	5	5	7	4
Monitor	inc.	opt.	opt.	opt.
Monochrome graphics	yes	no	yes	yes
Resolution	640x400	none	400x250	640x200
Keyboard	detach.	detach.	fixed	detach.
Function keys	17	10	none	5
10-key pad	yes	yes	opt.	yes
HELP function	yes	no	no	no
Disk drives	2	2 (opt.)	2 (opt.)	2 (opt.)
Disk storage	376K ea.	320K ea.	143K ea.	320K ea.
Serial Ports	1	opt.	opt.	1
Parallel Ports	1	opt.	opt.	1
Operating systems	TP/M CP/M	MSDOS CP/M86*	APPLEDOS CP/M*	CP/M MSDOS*

(* optional)

Software	Peachcalc Mailing Mgr. Spelling Chk. VALDOCS: Word proc. Elect. mail Calculator Schedular Graphics Filer	opt.	opt.	Wordstar Mailmerge Multiplan
Suggested Retail price	$2,995.00	$3,098.00	$2,495.00	$2,398.00

APPENDIX F

WHY VALDOCS?

Word processing is the most common use for most computer systems. Once a person has used a word processor, the old typewriter becomes as obsolete as the Edsel. We have complied a list of some of the most popular word processors for you to match against VALDOCS. We think VALDOCS is up there with the best of them.

COMPARISON OF CP/M WORD PROCESSORS

FEATURES	VALDOCS	WORDSTAR	PERFECT WRITER	SCRIPTSIT 2.0
MENU DRIVEN	yes	yes	yes	no
CAN DISPLAY MULTIPLE FILES	no	no	yes	no
DISPLAYS TEXT ON SCREEN AS IT WILL APPEAR IN PRINT	yes	no	no	no
DOCUMENTATION	v.good	hard	good	fair
HELP MENUS	yes	yes	yes	no
SAVE FILE AND CONTINUE EDITING	yes	yes	yes	yes
ATTACH FILES ON SCREEN	yes	yes	yes	yes
INSERT BLOCKS OF TEXT	yes	yes	yes	no
DISPLAY FILE DIRECTORY	yes	yes	yes	no
KILL FILE	yes	yes	yes	no
CURSOR BY WORD	yes	yes	yes	no
MOVE CURSOR BY LINE	yes	yes	yes	yes
MOVE CURSOR BY SENTENCE	no	yes	yes	no
MOVE CURSOR BY PLACEMARK	yes	yes	yes	no
MOVE CURSOR BY SCREEN	yes	yes	yes	no
MOVE CURSOR TO TOP OF DOCUMENT	yes	yes	yes	yes
MOVE CURSOR TO BOTTOM OF DOCUMENT	yes	yes	yes	yes
DELETE BY CHARACTER	yes	yes	yes	yes
DELETE BY WORD	yes	yes	yes	yes
DELETE BY LINE	yes	yes	yes	no
DELETE BY SENTENCE	no	no	yes	yes
DELETE BY BLOCK	yes	yes	yes	yes
RECOVER DELETED TEXT				
BY WORD	yes	no	no	no
BY LINE	yes	no	no	no
BY BLOCK	yes	no	no	no
INSERT TEXT	yes	yes	yes	yes
PUSH AHEAD	yes	yes	yes	no
FILE NAME FORMAT	*16 words	7 chrs	7 chrs	7 chrs
PLACEMARKS	yes	yes	yes	no
STORE BLOCKS OF TEXT AS SEPARATE FILES	yes	yes	yes	no
STORE SEPARATE FORMATS	yes	yes	yes	no
ON SCREEN TYPESTYLES	yes	no	no	no
ON SCREEN LINE SPACING	yes	yes	—	no
SEARCH AND REPLACE	yes	yes	yes	yes

LOCATE TEXT	yes	yes	yes	yes
WORD WRAP TOGGLE	yes	no	no	no
CURSOR LOCK/UNLOCK	yes	no	no	no
FULL PAGE/HALF PAGE SCROLL	yes	no	no	no
ON SCREEN CALCULATOR	yes	no	no	no

*** Not including the 32 most commonly used words.**

BIBLIOGRAPHY

EPSON America
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Torrance, Ca., 90505

WP News
Barbara Elman
211 E. Olive Ave., #210
Burbank, Ca., 91501

Dyna-Type
Paul Smith
Charlie Hodge
740 E. Wilson Ave.
Glendale, Ca., 91206

Bi-Tech Enterprises
Al Rosen
10 Carlough Rd.
Dept. 3H
Bohemia, N.Y., 11716

QuCeS, Inc.
178 Main St.
Metuchen, N.J., 08840

Hayes, Inc.
5923 Peachtree Indust. Blvd.
Norcross, Ga., 30092

Amber West
Jim Tetzlaff
1000-A Ortega Way
Placentia, Ca., 92670

Rising Star Industries
Bob Georgius
Chris Rutkowski
William Volk
24050 Madisaon St., #113
Torrance, Ca., 90505

Softwaire Centres, Int'l.
The Whole Crew
9929 W. Jefferson Blvd.
Culver City, Ca., 90230

Digital Research Inc.
P.O. Box 579
Pacific Grove, Ca., 93950

PSC Computers, Inc.
Stefan Baartman
Epson Product Mgr.
11701 Wilshire Blvd., #13B
Los Angeles, Ca., 90025

COMREX International, Inc.
3701 Skypark Dr., #120
Torrance, Ca., 90505

Mark Zeigler, James Mills, Bruce Ratoff, Roger Amidon, Bill Amedon, and Peter Green.

THE QX-10 BOOK
REFERENCES

VALDOCS Users Guide, copyright 1983 by Epson, America, Inc.

CP+ Users Guide, copyright 1982, Taurus Software Corporation

Microsoft Basic For the Epson QX—10 Users Guide, copyright Microsoft Corporation, 1981, 1982

QX—10 Operations Manual, copyright 1983 by Epson, America, Inc.

QX—10 Technical Manual, copyright 1983, Epson, America, Inc.

FX—80 Technical Manual, copyright 1983, Epson, America, Inc.

CP/M Primer For the Epson QX—10, copyright 1980, Stephan M. Murtha and Mitchell Waite

UPDATES AND NEW BOOKS . . .

Because VALDOCS is always being updated and expanded, The Barian Company will be sending updates of **THE QX-10 BOOK** upon request, *free of charge!* Just send a self-addressed stamped (37¢) envelope to:

The Barian Company
12021 Wilshire Blvd., Suite 148
Los Angeles, CA, 90025

Please tear off and send in for more information about:

..... THE QX-10 BOOK, volume 2

Picks up where THE QX-10 BOOK, version 1.18, leaves off. Detailed discussions of VALDOCS, version 2.X, new printers, new peripherals, and more software!

..... THE QX-10 PROGRAMMER'S BOOK

For programming with the QX-10. Includes: How to use TP/M II as a programming aid, TP/M utilities, BASIC, integrating CP/M programs with VALDOCS, and much more!

..... THE BARIAN REPORT

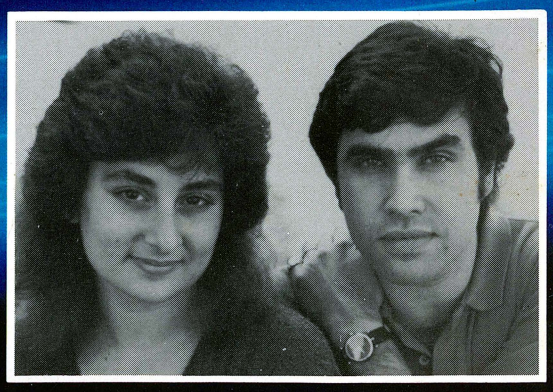
A bi-monthly publication on the trends and new technologies in the computer world. Includes profiles on specific computers and people in the industry.

NOTES

Since the Epson QX-10 was released in the spring of 1983, there have been many questions about what this remarkable system can do. First time computer users are interested in the VALDOCS software and its ease of use. Experienced computer users want to know if VALDOCS is a serious set of programs and wonder about expanding the QX-10 hardware. Does the QX-10 interface with other computers? How many programs are available for the QX-10?

Then there are people who already own the QX-10 and simply want to find out things the manual hasn't told them.

For those of you who already own the QX-10, for those of you who are trying to reach that "final decision" about which computer to buy, and for those who just enjoy learning more through reading about computers, this book is for you.



MARILYN SANDERS © 1983

David Barrett and Michelle Mehterian founded The Barian Company in the spring of 1983. Their love of the QX-10 and the VALDOCS system inspired them to write this book as a fun and informative guide for the computer novice and programmer alike. Along with writing, Michelle and David edit The Barian Report, a bi-monthly publication about the computer industry. They are also consultants for professional people and small businesses.

THE QX-10 BOOK VERSION 1.18

David Barrett and Michelle Mehterian

THE BARIAN CO.